OE FORM 6000, 2/69

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

ERIC REPORT RESUME

ERIC ACC. NO. ED 039 385			
CH ACC. NO. AA 000 563	P.A.	PUBL. DATE Apr 70	ISSUE RIEOCT70

IS DOCUMENT COPYRIGHTED? YES ☐ NO ☒
ERIC REPRODUCTION RELEASE? YES ☐ NO ☒
LEVEL OF AVAILABILITY I ☒ II ☐ III ☐

AUTHOR

TITLE
Early Childhood. Papers Presented at the Annual International Convention of the Council for Exceptional Children (48th, Chicago, Illinois, April 19-25, 1970).

SOURCE CODE FGK19725	INSTITUTION (SOURCE) Council for Exceptional Children, Arlington, Virginia
SP. AG. CODE	SPONSORING AGENCY

EDRS PRICE 0.50;6.25	CONTRACT NO.	GRANT NO.

REPORT NO.	BUREAU NO.

AVAILABILITY

JOURNAL CITATION

DESCRIPTIVE NOTE
123p.

DESCRIPTORS
*Exceptional Child Education; *Handicapped Children; *Early Childhood; Educational Diagnosis; Educational Television; Instructional Materials; Identification; Multiply Handicapped; Remedial Instruction; Parent Education; Preschool Programs; Reading Skills; Elementary Grades; Conference Reports

IDENTIFIERS

ABSTRACT

The report includes papers presented on early childhood at the 1970 convention of the Council for Exceptional Children. Discussions are concerned with the effectiveness of teaching selected reading skills to children 2 to 4 years by television by Barbara J. Dunn, educational materials as an aid in evaluation of preschool multihandicapped children by Ronnie Gordon, and the use of instructional materials with multihandicapped preschool children by Carol Halliday. Additional papers present a progress report of a project in early identification and remediation of learning problems in elementary school children attempting to increase classroom success by James Barnard, and a panel of research findings with programs for preschool children and parents by Merle B. Karnes. (JM)

ED 039 385

EARLY CHILDHOOD

Papers Presented at the

48th Annual International Convention

The Council for Exceptional Children

Chicago, Illinois

April 19-25, 1970

Compiled by

The Council for Exceptional Children

Jefferson Plaza, Suite 900

1411 South Jefferson Davis Highway

Arlington, Virginia 22202

AA 000 563

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THE EFFECTIVENESS OF TEACHING SELECTED READING SKILLS TO CHILDREN TWO THROUGH FOUR YEARS OF AGE BY TELEVISION

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INTRODUCTION:

Throughout the literature on early identification of Gifted children one common characteristic can be found. Children who later exhibit high levels of intellectual ability are found to participate in reading activity very early. We have assumed that such early involvement with symbolic language was a result of a high level of intelligence and indeed could be looked upon as an accurate predictor of giftedness. In light of current investigation it may be more appropriate to view the early reading activity not as the effect of established intelligence but instead as a possible contributing cause of later high level ability intellectually.

For several decades we have been limited in our inquiry of early reading by the assumption that children younger than six years cannot be taught to read. The research that followed this conviction was designed to prove that teaching reading to five and six-year-old children, even if possible was certainly a waste of time. Within recent years educators have begun to question the validity of these kinds of statements, and more importantly, of the basic underlying assumptions.

The assumption that a child under the age of six is physiologically unable to read must be re-evaluated in the light of recent investigation. The current literature in growth and development of the infant and young child reflects our increasing knowledge of their visual acuity and facility. The early preference for complex patterns (Fantz, 1961); the early ability to focus and discriminate visual stimuli (Haynes, et al, 1965); and the early development of highly operable accommodation (Walk and Dodge, 1962) have made such an assumption untenable.

Basic to prior investigation was the assumption that children younger than six were intellectually incapable of reading activity. However, there have often been reported examples of reading activity by children far younger than the accepted reading age. Though in the past such activity was explained by referring to these children as gifted, in light of current investigation by biologist, geneticists, psychologists and linguists it may be more appropriate to view such activity as the utilization of capabilities available to all children. This capability, when actualized, may then produce a higher level of cognitive functioning (or giftedness).

The current investigation of the theory of an innate, species-specific, language acquisition device may help to explain the importance of these early years and reading activity. This theoretical construct asserts that normally during the years from two through four the human has available an innate ordering device that makes possible more efficient acquisition of language than will be evidenced at any other period throughout his life (Krech, 1969; Lenneberg, 1962; Chukovsky, 1960).

While more data is becoming available on the vast potential for learning of the very young child, and on the importance of utilizing these highly sensitive early years, little research is available to suggest ways to actualize this potential. This study seeks to add data in the area of specific implementation.

The capability of the very young child to learn selected reading skills and the effectiveness of the television medium to present such skills was investigated.

The use of television as the facilitator of such an instructional program can be viewed as appropriate from two frames of reference. Many have asserted that the single most useful thing we can do for our young children, especially the disadvantaged, is to teach them to read. While we may agree with this idea little hope remains for finding teachers and classrooms for the majority of these children. These children watch television more than any other group, an estimated 54 plus hours a week. If television could be used successfully as a facilitator for learning early reading skills these children could be given the impetus they need toward later success in reading.

To provide data that would help in making more valid decisions in the area of implementation of early reading instruction the following hypotheses were tested by this study:

I. Systematic instruction in selected reading skills by television will result in significant gains with children two through four years of age as measured by a test presenting alphabet, alphabet sounds and basic vocabulary.

II. A variation in gain on selected reading skills will occur and will have a significant relationship to age, verbal IQ, socio-economic level and time spent on follow-up activities.

Sub-hypothesis A - A significant difference in gains will be found among age groups.

Sub-hypothesis B - A significant difference in gains will be found among verbal IQ categories.

Sub-hypothesis C - A significant difference in gains will be found among socio-economic levels.

Sub-hypothesis D - A significant difference in gains will be found among time-spent-on-follow-up-activities categories.

DEFINITION OF TERMS:

Systematic reading instruction - the systematic presentation of alphabet, alphabet sounds and basic vocabulary by closed circuit television fifteen to twenty minutes once a week for twelve weeks. The approach was based on current findings (Chall, 1967; de Hirsch, Jansky and Langford, 1966) favoring decoding as the most effective way of introducing reading. Elements of play are included as suggested by Fowler (1965).

Selected reading skills - skills selected were knowledge of the alphabet, alphabet sounds and basic vocabulary. Choice of these skills was based on the work of Durrell (1958), Linehan (1958), Hildreth (1964), de Hirsch (1966), and Chall (1967). The 22 words for the basic vocabulary were chosen for their high valence and inclusion in the two through four-year-old child's immediate environment as suggested by the work of Madian (1966).

Children two through four years of age - children who have passed their second birthday but have not yet reached the third month past their fifth birthday.

Verbal IQ - as measured on the Peabody Picture Vocabulary Test.

THE STUDY:

The Peabody Picture Vocabulary Test, tests of knowledge of alphabet, alphabet sounds and some basic vocabulary were given to 90 children two through four years of age. These children were randomly selected from respondents to a letter of invitation to participate sent to 500 children whose names had been submitted to appear on a local children's television program. The 90 children were then randomly assigned to an experimental group and to a control group. The criteria for selection was age and parental cooperation providing for daily ten minute activity sessions and weekly attendance at the project. The children in the experimental group with a parent attended twelve weekly closed-circuit, videotaped presentations of selected reading skills. These parents were given a manual of activities which reinforced the presentations with instructions to use the activities at least ten minutes each day. At the completion of the series, posttests were given to both groups. These tests were similar to the pretest and included the Peabody Vocabulary Test. Due to attrition, the experimental group now had 27 subjects and the control group consisted of 25 subjects.

The tests of knowledge of alphabet and alphabet sounds were constructed following the procedures adopted by de Hirsch (1966) of randomly selecting letters and letter sounds for the pre and posttest. The selection of 22 words for a basic vocabulary followed the suggestion of Madian (1966). The PPVT was developed by Dunn (1965) as an individual test to provide an estimate of verbal intelligence.

During the pretest a data sheet filled in by parents provided information about the families.

ANALYSIS:

T tests were used to compare groups on gains made in the selected reading skills over the four month period. An analysis of variance was performed on the selected demographic and personality data obtained from each subject in the experimental group to find the relationship of these factors to the rate of gain made on the selected reading skills. The sub-groups investigated were categorized by age, verbal IQ score, socioeconomic level and time spent on on follow-up activities. Significance was assigned at the .01 level.

FINDINGS:

The gains in selected reading skills by the experimental group were significantly better than the control group at the .001 level. (See Table 1)

It is interesting to note that neither the relationship of age nor verbal IQ to gain in skills was found to be significant in this study. These findings challenge the emphasis on the attainment of a specific mental age as a prerequisite for success in skill level reading activity.

Socioeconomic level as assessed by family income was found to have a significant relationship with gain in reading skills. The lowest socioeconomic group made the most gain while the more middle class groups made gains with lower means. Several possible reasons present themselves; 1) the better utilization of the medium as a learning tool by this group has been reflected in the literature; 2) less initial information possessed by this group - although none of the subjects had any vocabulary knowledge initially; 3) intense motivation for successful performance of the children evidenced by the parents of this group.

Time spent in follow-up activity varied in a direct positive ratio to the gain in reading skills. (See Table II)

For mastery of the selected reading skills television is seen to be a facilitating medium of presentation.

In summary, the findings that children two through four years of age can be effectively taught these reading skills by use of the television medium is of major importance. Learning problems may be reduced or at least better assessed at an age when the child responds more quickly to remediation. The availability of this type of skill to more children may help to achieve proper utilization of the period most sensitive to language which will lead us closer to optimal development of man's learning potential. The actualization of more of the child's potential may indeed give us a better understanding of Pressey's theory on the Creation of Genius.

Table I

Differences Between Groups in Gains Made

Category of Gain	Mean		SD		T Score	Level Sign.
	Control	Exp.	Control	Exp.		
Alphabet	.920	5.370	2.261	3.390	5.417	.001
Sounds	.720	4.111	1.372	3.425	4.530	.001
Vocabulary	.680	12.444	1.783	7.135	7.860	.001

Mean of Reading Skills Gain

Control	.77
Experimental	7.308

Table II

Relationship of Four Factors to Gain in Reading Skill

Source of Variation	df	Mean Gain	F Score	Level Sign.
Age				
2-3 years	2	6.22	3.02	None
3-4 years	9	5.77		
4-5 years	13	8.64		
Overall total	24	7.31		
Verbal IQ				
- 75	0	3.33	1.79	None
75- 89	2	5.83		
90-109	12	8.36		
110-124	5	6.11		
125	3	8.42		
Overall total	22	7.31		
Socioeconomic Level				
$ 1,000- 4,000 @ yr.	1	10.17	5.91	.01
$ 4,000- 7,000 @ yr.	7	7.33		
$ 7,000-10,000 @ yr.	6	6.89		
$10,000 and above	9	6.97		
Overall total	23	7.31		
Time Spent in Follow-up Activities				
-10 min. @ day	1	5.33	9.44	.01
10-30 min. @ day	21	7.22		
30-60 min. @ day	2	9.22		
Overall total	24	7.31		

Table III

Null Hypotheses Analyzed

Null Hypothesis	Analyses Used	Level of Significance	Disposition
I	t Test	all comparisons .001	rejected
II - A	F Test	Not Sign.	accepted
II - B	F Test	Not Sign.	accepted
II - C	F Test	.01	rejected
II - D	F Test	.01	rejected

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"The essential aspect of thought is its operative aspect:"[1] Piaget clearly and repeatedly states that human knowledge is essentially active. Knowing an object means acting upon it; this includes the belief that an abstraction or generalization is drawn not from the object itself, but from the action on the object. In a lecture at Columbia University, he offered an example of a small child counting pebbles: "He lined them up in a row and counted them from left to right and got to ten. Then, just for fun, he counted them from right to left to see what he would get and was astonished that he got ten again. He put the pebbles in a circle and counted them and once again there were ten. He went around the circle the other way and got ten again. No matter how he put the pebbles, when he counted them they came to ten. This child made a discovery--a mathematical discovery--one that is known in mathematics as commutativity or that the sum is independent of the order. Commutativity was not a property of the pebbles. It is true that the pebbles let this action be done to them (the boy could not have done the same thing with drops of water). In this sense, then, there was a physical aspect to this knowledge. But, the order was not in the pebbles. It was the child, the subject, who put the pebbles in a line and then in a circle. Moreover, the sum was not in the pebbles; it was the child who united the pebbles."

How is this story about pebbles relevant to our topic, "Instructional Materials" and why have I chosen to use this story? I believe I can answer both these questions if you give me time (of course, no sensible speaker would raise such questions if they were not an asset to his argument or did not support his particular position). All of us who are here in this room today are obviously concerned with the intellectual growth of very young children. In fact, I can make a more broad statement--the whole world appears to be concerned at this point in time with the intellectual development of young children! This exciting new interest in normative patterns of growth is certainly reflected in the plethora of studies, programs, instructional materials (software and hardware) bombarding all of us. And, more recently, this new interest and investment and, once again, I quote a colleague of mine who called it humorously but I think correctly "corporate as well as scholarly investment" - this new investment in pre-school education has been extended to the education of exceptional children before conventional school-entry age. The composition of this panel and the subject under discussion attests to this new interest.

I should confess to the Chairman that I was negligent. I did not inform her personally (prior to coming to Chicago) that my confidence is more in pebbles and discovery than in flash cards, hardware or rote learning. My position educationally (my philosophy if you will) is much more attuned to young children's motivation, attention, style and activity with objects in their world than on specific instructional materials that are intended to reflect directly what the child is to learn.

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[1] Piaget, Jean - Genetic Epistemology, Columbia Forum, Fall 1969, 4-6.

I am concerned, therefore, about educational programs focused on specific subject matter and methods for fixing in memory specific stimulus which assumes that the pre-school child is passive in the learning process. In contrast, there are programs devoted to stimulating both cognitive and affective development in young children--programs with goals that I find more compatible with my bias. These programs are focused on what Wolff calls "making the non-specific stimulus nutriment more orderly and creating the opportunities for self-selected learning."[2] This approach assumes that the learner is active in his encounters with the environment and that "learning depends on an active interchange between the developing organism, in this case the child, and those constants in his physical and social world from which he will create sound cognitive structures". I personally have more confidence in the quality and ratio of staff than in the quantity of packaged materials, programed learning, and new cults of methodology. I am concerned with what Biber called the "undifferentiated rejection of past theory and practice in favor of poorly defined innovation with unrealistic promises of rapid remedy".[5] Though her comments were made about programs for the disadvantaged, I recognize a similar pattern immerging in the proliferation of programs for the handicapped pre-school child.

Our own experience over the past eight years with multi-handicapped young children, a large proportion of whose physical disabilities are associated with learning dysfunction, suggests clearly the need for very individualistic and flexible approaches rather than cult-like models that lend themselves more comfortably to pre- and post- outcome evaluation. A paper in Child Development by Kohlberg supports this kind of thinking. He comments on the "relative futility of early specific training of a function"[3]. This developmental view sees "specific training as failing primarily because it cannot make up for the age-linked, general experiencial lacks of the young child rather than because it cannot make up for his neurological immaturity". It states that cognitive structural development depends upon massive general experience which a child cannot short-circuit and specific training "cannot substitute for age-linked general experience".

I would like to introduce one more illustration of the need for the child's own activity on the objects in his world in contrast to passive engagement with specific instructional materials. A British study by Cashdan showed that children remembered solid shapes better after manipulating them than when they had just seen them. None of us would question that. But, when the shapes were enclosed in a plastic sphere and then handled they were remembered as well as if the actual forms had been manipulated. This is fascinating to me and suggested that "the crucial factor is the amount of activity exerted by the child and not the particular sensory channel employed"[4].

[5] Biber, Barabara, et al. - The Psychological Impact of School Experience, Basic Books, Inc., New York, 1969, XVI.

[2] Wolff, Peter - What we must and must not teach our young children from what we know about early cognitive development. Clinics in Developmental Medicine, No. 33, Lavenham Press Ltd., London, England, 1969, 9.

[3] Kohlberg, Lawrence - Early Education: A Cognitive-Developmental View. Child Development, 1030.

[4] Denner, B., Cashdan, S. - Sensory processing and the recognition of forms in nursery school children, British Journal Psychology, 1967, No. 58, 101.

I have spent, I realize, a considerable portion of the time allocated to me on philosophy--particularly my own as it has developed over the past nine years. Ours is a therapeutic, diagnostic and research oriented program already having serviced well over 500 exceptional pre-school age children with a mosaic of handicapping condition (physical and/or mental). We operate in a medically oriented Rehabilitation Center (which is part of New York University Medical Center). We believe that much of the learning of the very young child, deviant as well as normal, is a by-product of individual investigation and exploration. Such learning is stimulated by the child's immediate physical environment and the age-appropriate materials and activities readily available for him as well as by more structured, sequential problems and manipulative materials presented by the teachers.

We deeply respect the importance of peer interaction and the critical and the basic role of play in maturation and development. And, just as the normal child is offered intensive exposure to sensory, art, relationship, language and music experiences in a nursery school setting, so are the in-patients and out-patients in our custom designed Learning Laboratory. I stress that our curricular goals are in a sense traditional ones. They aim at encouraging the individual development of the child as a learner rather than the acquistion of selected and restricted content and individual rote skills.

Children who have a variety of handicaps need, of course, sensitive adaptations and modifications in the materials and activities as well as in the design of the schoolroom itself to facilitate their exposure to learning experiences and to increase their effectiveness (as well as the effectiveness of teaching personnel).

There was, I believe, a natural sequence in the extension of our responsibility from therapy and evaluation to research. The curriculum of the therapeutic program calls for exposure to learning experiences that are age appropriate, and, let me be clear, I mean mental age rather than chronological age. In turn, the child's relationship to materials and use of educational toys as well as the quality of his relationship with his peers and adults suggests a developmental profile of current manifest capacity. When such performance deviates from expected norms in a clear enough pattern to be identified as distinctive, we had reason to think that we had observational data worthy of more intensive study and research.

In our more than eight years of operation, we have evolved an informal evaluative procedure. In a sense, it just grew--out of expediency. We are mandated to present a developmental assessment of the in-patients who are admitted on Monday in time for the multi-disciplinary evaluation conference on Thursday--that is, possibly after as little as two or three half-hour sessions with the child. Since time was a critical factor, it soon became clear that by using our experience and knowledge of how normal chilren use particular educational materials we could observe our patients' use of similar if not equal toys by presenting them with a selected group of materials that involve relationship thinking. Not only are we concerned with the obvious discriminatory abilities (ones that focus on differentiation of basic shapes and graded sizes and color) we are concerned even more with the child's investment of attention, his ability to anticipate consequences, to comprehend a goal, to organize a solution, and his flexibility in finding an alternate solution if the first one proved untenable.

We are concerned too, with what Dr. Burton White calls dual focusing--"the ability to maintain attention to a proximal task and at the same time to monitor peripheral events"[6]. Since so much stress has recently been placed on the acquisition of specific discriminatory skills and labels which, in my opinion, are worthless if they can't be used constructively in another equal or more complicated problem, we have to be concerned, at this age, I believe, with the transferability of already attained competencies as well as the benefits the child derives from practice. We stress particularly the process--the style and quality of the child's play. Too many pre-school programs, in my judgment, ignore this and focus on product--concentrating on a very sterile curriculum based on training for acquistion of very specific pieces of information.

Approximately two years ago, we more formally suggested that there was a distinct and significant difference between the neurologically-impaired and the neurologically-intact populations we service at the Institute in the way the children handle educational materials, toys with a visual-perceptual component. Those children, whose limitations were solely physical, function in a manner similar to the children with whom I had worked many years ago called "normal". We believe the differences identified to be significant and clearly defined. These differences suggested that there was developmental divergence. We used two conventional educational materials--ones that tested target abilities; one stressing form and shape discrimination and the other stressing the ability to differentiate graded changes than size. We could have selected items from many materials with which we had grown very familiar with comparable built-in task demands.

A hypothesis was offered by the pre-school educators on the difference in styles and responses they expected between the impaired and unimpaired groups of children, and also on the individual chronological ages or cognitive stages at which certain competencies are to be expected. I started this study with about twenty-five patients and then added a control group from a neighborhood Nursery School. Very fortunately, at that time, our behavioral science department became interested in the possibility of a more rigorous, formal approach to this investigation. Both departments, education and psychology thought it had implications for training diagnostic teachers and for predicting future learning problems at an early age.

Let me be clear and very emphatic about our use of materials such as the Form Box and the Montesorri cylinders, the two specific pieces of conventional play equipment that we use as part of informal evaluation and were used in our investigation. They are not our curriculum. We have found them, however, to be fine instruments for evaluating specific skills that develop the first four or five years of a child's life. We believe them to be predictors of what Dr. Herbert Birch calls a child's "readiness to respond to different kinds of perceptual demands which are fundamental for future formal academic learning"[7]. At no point, and I'm going to emphasis this, do we suggest that they are a gauge of intelligence. They only measure one particular type of cognitive organization--that which is dependent upon visual differentiations, spatial discriminations and the ability to attend to and integrate a solution.

[6] White, Burton L. - Non-Social Competence, Unpublished paper, Harvard University, 1969.

[7] Birch, Herbert - The Development of Human Perception, Unpublished paper, Albert Einstein College of Medicine, 1969.

When I first introduced the story about the boy counting pebbles from Genetic Epistemology, I told you the high value I place on the child's activity on the pebbles--on this type of learning. Again I reiterate that our focus and research on two structured materials related to discrimination in no way reflects a change in value-judgment, or suggests that this type of learning has priority over or is even as important as less directed, unstructured exploration and experimentation--the child's continuous action and activity upon his world. In fact, and I refer back to Kohlberg's thesis, the effectiveness of specific stimulation is contingent upon its match with a given level of development and the child's perception of the world is determined by his stage of maturation. "A stimulus is only a stimulus if it can match or be assimilated into an already-developed schemata."

However, I will not minimize the role played, and more importantly, the extended role that can be played by structured educational materials, such as the Form Box and Cylinders of our study. Goal-oriented materials are effective as diagnostic tools in the hands of a sensitive and knowledgeable teacher. Our study has clearly indicated that at each stage there is a lawful pattern of competency in visual discriminations and differentiations, as well as in spatial relationships. There are expectations, therefore, that firmly establish a sequential basis for acquisition of perceptual organizations. With this frame of reference, marked deviations from this pattern in a child's performance can suggest to a teacher--a teacher who is aware of the task demands of the educational materials she makes available to her children, that there is interference of some type in the child's development. We have found a clear and different profile of performance in neurologically-impaired pre-school children from neurologically-intact pre-school children.

Not only are we aware now of deviations in overall performance, but we have been able to isolate the illogical mistakes and the eccentric styles of response that are associated with neurological dissonance in contrast to the logical mistakes that are expected normally at a particular age and are expected to disappear at a later maturational stage.

Our observational data and evaluations suggest that comparable results could be anticipated by this type of rigorous investigation of many similar materials used casually (perhaps too casually) in many pre-school programs. There are specific task demands, we believe, implicit in each piece of educational material that is soundly designed to test relationship thinking. And we would expect that a child who demonstrated uncommon responses and a deviant style of processing and handling with these educational materials which test the refinement of discriminatory and organizational abilities would have difficulty with different goal-oriented tasks where the solution was dependent upon similar differentiations.

We have been studying how children use these materials--the process of their play, the style of their play. As an educator, I must add too, that teachers need to be aware of the child who does not use these materials--the avoidance of this type of play. Our experiences strongly suggests"that very early in his life the young child recognizes his areas of strength and his areas of weakness, and the child, in the choice of activities offered in a rich Nursery School environment may discreetly avoid work with manipulative and relationship materials"[8]. In no way am I suggesting that all children who avoid materials with perceptual components have problems of neurological origin. But, I am suggesting that a teacher has the responsibility to ascertain whether this is preference or avoidance. If a teacher is familiar with age-specific abilities, she has only to offer several of the many educational materials toys on the shelves of her room to observe the child's performance and response style before making a judgment as to developmental integrity.

The type of detailed analysis of every individual action by each child that was required in our study to identify common and uncommon responses to two very conventional materials has both clarified and emphasized to us the need for as detailed an analysis and reassessment of the teacher's competencies. If a teacher of pre-school children is to be effective, formally as a member of a diagnostic team or more informally as a reliable interpretor of a child's individualized style of response, she needs a deeper and more rigorous body of knowledge with reference to physical milestones (in which I include neurological growth) and cognitive patterns including the maturation of human perception and the development of logical structures. A well qualified pre-school teacher needs to be more than just "familiar" with the educational materials she uses as tools for learning experiences. She should be knowledgeable about the task demands of each material and sensitively trained to know when and how to present a specific goal-oriented stimulus to each of the children for whose education she has assumed the sometimes awesome responsibility.

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[8] Gordon, R. & White, D. - Developmental Studies Comparing the Performance of Brain Damaged and Non-Brain Damaged Children with Educational Materials with a Perceptual Component, To be published, 1969.

MULTIPLE-HANDICAPPED PRESCHOOL CHILDREN AND INSTRUCTIONAL MATERIALS

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Perhaps we would do well as we begin a brief consideration of instructional materials for preschool children with multiple handicaps to look first at some basic tenets of value with regard to children, generally.

1. The first of these is the realization that there are many commonalities linking most children - commonalities having to do with sequential growth and development, ways of better learning, experiential needs, emotional and psychological ramifications, among others.
2. The second demand from those who work with children - whatever their special needs might call for in addition - a knowledge of child development principles and understandings and an awareness of the ways by which to evaluate a given youngster in order to determine his needs along various continua. It is recognized that many professional persons in teaching and related roles do not at present have such knowledges in their own backgrounds of preparation - certainly most parents do not, except as they grow into being capable, aware, sensitive, and understanding from and with their children. Rather, however, it does mandate a team involvement which would place a person strong in child development understandings in a position of effective input

so that truly developmental programs could be prescribed for each youngster concerned. It perhaps goes without saying (but will be stated, even so) that instructional materials to help each child develop from his various particular accomplishment levels will need to be related to this child development frame of knowledge in order for most appropriate learnings to occur.

3. While in many circles it is only superfluous to say that the early childhood years are of supreme importance, the following are indeed of the "basic tenet" ilk. Early environment, early experiences, early care, early learnings set the mold for the adult to come. We hear of the need for experiences to be sequential and appropriate - that there is a "right time" for best learnings to occur - that "just manageable tasks" with a freeing kind of emotional/psychological support provide the best challenges to children (to all persons, it should be added - adults as well).

4. There are certain important life areas which pertain to all children - these include the gross muscle, fine muscle, self care, language, attitudinal (self-concept, emotional), social, intellectual (this latter, it seems, would involve play, eye/ear/hand coordination, problem solving in various areas). Needless to add, yet of value lest we allow ourselves to think to extreme in compartmentalized manner,

all of these are so interrelated one with the other that the whole - the entire child - is indeed much more than the sum of his parts.

5. Children learn in ways about which quite a bit is known though more remains to discover. Of prime importance is the sufficiently challenging developmentally, supportive yet freeing, caring yet encouraging, social atmosphere within which they begin life. Learning also occurs best, generally speaking, when children move from: the familiar to the increasingly unfamiliar; the gross muscle involving to the finer muscles involving activities; the simple to the more complex (whether in terms of direction following, vocabulary, pictures or other aspects); concern with self to increasing awareness of, and concern with, others; the immediate to the more remote; activities involving short attention span to those involving longer attention span; thinking of self to thinking of others; using words as labels to using words regarding thinking; doing to sensing to symbolizing. These are general understandings - others exist, of course - which can serve as springboards for teaching from the standpoint of whatever adult involved (whether parent, teacher, administrator, other).

6. Need it be said that expectations of others around one have great influence on how and what one learns and does? This is true of adults - even more true of children. Within the framework of certain realistic confines - such as those established by the core minimal effects of a physical handicap (and we are learning to be wary in this regard since people have varied so in their acceptance of this "minimum") - how one learns to feel about and view one's self, in part as he is taught by those around him, determines where one goes and what one achieves in life.
7. The last of these basic tenets considered of prime importance in this particular assemblage of such concerns acclaims the individuality of each and every child - over and above the generalities which apply to the category "children." Within this framework of understandings, knowledge and expectations each child must be recognized in terms of his own strengths and limitations, his likes and dislikes, his many uniquenesses and helped to realize himself as his life unfolds as an individual.

Now, let us look more specifically at the child whom we call multiple handicapped. To begin with definition seems appropriate - a useful one for many is that which describes the youngster with multiple handicaps as the one whose combination of handicaps (mental, physical, emotional, social) is such that programs and services (of diverse kind) geared to youngsters with only one major handicap and generally considered adequate do not meet the needs. But we're wise enough now to know there's much more involved that has to be considered! The term "multiple handicapped" means little as descriptive or prescriptive of a specific child. The range of differences and of characteristics among multiple-handicapped children is vast. A particular youngster may indeed be gifted intellectually while confined to a wheelchair and severely visually impaired. Another may be severely cerebral palsied with in-depth emotional problems due in great part to unfulfilled aspirations and the limiting attitudes of those around him. Let us be very clear, then, that each child called multiple handicapped must be looked at in terms of his functional abilities, lacks and weaknesses - must be evaluated in terms of the real life areas already discussed - then must be programmed with in terms of his own particular potentials and needs.

In order to accomplish this for each youngster, teamwork among parents, educators, social workers, and health personnel and others is essential. At state, regional, and local levels ways must be evolved to develop mechanisms whereby this can be accomplished. One detailed approach in this vital regard is that spelled out by the federal program called 4-C (Community Coordinated Child Care) implementation of which has only just begun. It sets forth philosophy, scope of involvement, ways of work, details for action and ultimately includes all children as its concern - those who appear most "normal" to those who are most severely multiple handicapped. Basically, however, it's a plan and program whereby people concerned with children get together to talk about, and act on, ways of serving them better and more expansively. This coming together and beginning of cooperative plans and actions, based on needs, can be initiated by almost anyone, almost anywhere, who is convinced enough of its importance and efficacy - whether the end result be a 4-C program or simply improved and more comprehensive teamwork regarding children.

Whether parents or more formally named "educators" are involved, there are certain ways of work, certain emphases which are appropriate for all as they interact with children - though they may be expressed in varying terms, depending on the sophistication of the user. We need to encourage:

1. movement - for the purposes of physical/sensory involvement and development, and deepening and expanding awareness and understanding of space and one's body;
2. language development and speech - in ways that give purpose for words, and promote thought;
3. increasingly fine hand use - whether in conjunction with eye or ear or both - through play activities, the doing of self-care tasks, etc.;

4. increasingly positive independence in thinking and actions - in areas of self care, taking of home responsibilities, problem-solving, decision-making, planning;
5. meaningful contacts with peers and other persons - in ways which enable awareness of others to develop into appreciation, respect, the ability to play and work together, thoughtfulness;
6. certain appropriate "play pretend" activities which enable the reliving, thus intensifying, of experience, and the placing of self in others' shoes - all necessary, we're told, in the development of abilities to symbolize;
7. the development of positive, while realistic, feelings about self (as well as others) - feelings built on awareness of one's strengths and lacks, expanding learnings and accomplishments, the maturing attitudes of those around one.

While the aforementioned pertain, in some degree, to any but the most inert child, it's important to note that the child with multiple handicaps has special needs. The world must come - must be brought to this child; the almost casual learning possible to so many youngsters is not easily obtained by the youngster whose input - avenues are narrowed, lacking or distorted. Assumptions regarding awareness, observations, experiencing - valid for many children - do not apply to those with multiple handicaps. Inclinations of others to see first the lacks, the differences, the negatives before glimpsing - then realizing - the positives, the commonalities, the potentials in a weighty consideration. The legitimate expectations of those in close proximity to the child with multiple handicaps have even more to do with his learning and development than with that of other children, since this youngster is bound even more by their world and is more vulnerable to their feelings and actions. Often the youngster with multiple handicaps begins life in a poor emotional setting, made so by the trauma which recognition of his problems usually causes. Curtailment of speech between parent and child is another possible effect, stemming as it may from the warped emotional climate, or perhaps from the failure to realize its increased importance for the child with multiple problems. The mother who normally is a taciturn person with her other children and her peers, even effectively so, has to become aware of the need to force herself to be more vocal since so much of the relationship between herself and her multiple-handicapped youngster depends on it. Social opportunities will require far more careful planning. Few casual involvements will occur. Learning problems are compounded geometrically when multiple handicaps are present. It's not a "simple" matter of adding visual loss to hearing lack, for instance - rather, such a combination has a synergistic effect difficult to realize by any but the most profound and sensitive.

At this point it will be noted that nothing has been said directly which specifies or describes particular instructional materials. Yet - all that has gone before has direct bearing thereon. Within the general framework of order and direction which child development knowledges spell out for us - refined by recognition of a given child's individualities in terms of the important life learning areas - and sifted through the measure of availability - materials meaningful to each will become apparent. Their appropriateness will be shown through their being used in ways indicating interest, pleasure, manage-ability. Their use will be called for by the learning principles previously presented. Within the loosely-drawn confines of the foregoing can be seen a vast diversity of materials called instructional. The specifics of kind, dimension, color, texture, purpose, etc. will be dictated - as said before - by the needs and learning point and achievement level of the particular child.

Often the simplest materials - those which many homes provide - will be most useful. (There are those who say that during the first several years of life there is no need to buy instructional materials, toys, for any child. They exist already in the basic life-items around him.) From the standpoint of obtainability, those which occur in the natural environment or are already at hand in house or educational program must be considered first and programmed from. We know increasingly well, however, that there are many children who begin life in almost nothingness or worse. Some communities have begun to develop "toy libraries", whose contents include specific developmental materials as well as purposes for and ways of use, etc. Others -

through various mechanisms and procedures - alert all persons going into homes for whatever reasons (Public Assistance and Child Welfare staff, county health nurses, for example) to certain basics which can and must be encouraged regarding all children in however impoverished a setting. We're aware of the many companies which make toys and early childhood materials - increasingly, these products are being developed on scientific bases and child development constructs. Modifications for the particular child - sometimes a color change, an added texture, or others - can often make a usable material good, or a good material excellent. Some few places, such as the American Printing House for the Blind, are giving consideration to the making of materials with certain particular qualities felt to be of special value to children with multiple problems. Let us remember that the dictates as to which materials when, etc., emanate from the needs, strengths, weaknesses, abilities of the particular youngster.

There are many who can read such dictates, and well. For the many who cannot, we must think - within our home territories - of ways by which to bring such expertise to effective, cooperative involvement with those who know the individual children best, in most cases their parents. As yet, there are few educational programs anywhere which are for, or include, preschool multiple-handicapped youngsters. Counseling services to parents are relatively rare; mechanisms other than medical for helping families whose member has multiple problems are found in only few places. Within each community area concerned, professionals must get together - it matters not whether their special forte is "preschool multiple-handicapped children." The main involving factor should be interest in preschool youngsters and the meeting of varied needs - details will evolve as an area's child population is discovered and studied.

As mentioned before, the 4-C program gives a model and offers a plan and a direction for services both more effective and more economical. Whatever the way of work, we know it's imperative that young children thrive - for the sake of their present as well as for their future. More than most, children with multiple handicaps must be considered. Each of us here must extend our present base of involvement to further advocate, plan for, then act regarding the provision of early childhood programs of all pertinent kinds for those youngsters in our immediate domain.

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The Early Identification and Remediation of Learning Problems in Elementary School Children as an Attempt to Increase Success in the Classroom: A Project Progress Report

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Introduction

The present project has as its major concern, the demonstration of the efficacy of an intensive intervention program in assisting young elementary school children with demonstrable learning problems to achieve a level of success that would permit them to be retained in the regular classroom. Two major principles have guided the development of the project. First, the program has as its primary criterion of success the level of functioning of the child in the regular elementary school classroom. All factors such as intelligence, social maturity and emotional adjustment are important, then, only insofar as they are related to and contribute to the child's success in the classroom. Second, it is recognized that the value of the program will come in large part from the implications the knowledge that is gained will have for the education of learning problem children within the educational systems in Hillsborough County, in the State of Florida and nationally.

It is understood that no educational program of significance is developed within a vacuum, but rather should, ideally, reflect the current state of the art in its basic underlying assumptions and in its manifest prescriptions. Following is a description of the basic premises upon which the present project has been based. First, to make the maximum impact upon a child, an intervention program should occur as early as possible, for at least two reasons: it is important to begin work with a child during the years of most rapid growth, which of course is during the early years of development; and, it is important to begin work with a child before he has had the negative effects of inappropriate learning and the accompanying frustrations experienced as a result of continuous failure. (Frostig, 1967a; Haring & Ridgway, 1967; & McGahan, 1962).

The second basic premise has to do with the belief that an intervention program, to succeed, must not itself contribute to the already powerful forces that work toward the isolation of the learning problem child from the mainstream of life which is most readily available to him through his regular public school classroom. The implications of this premise carried to its logical extreme would mean that ideally all children would remain within the original school situation regardless of the nature of their learning problems, and intervention procedures would be integrated within the regular classroom activities. Though this might be a statement of theoretical importance, it is recognized that this is not possible nor even desirable in many cases, given the reality of the present education system, and for many children the special attention they need to achieve ultimate classroom success may have to be provided in special settings. Because of this reality-based necessity, continued effort must be made to assure wherever possible that both the means and the ends of the special training to which a child is subjected have a close correspondence and a direct relevance to the goals of the regular classroom, and that the problems of re-entry should be given the highest priority.

The conception of each child as representing a unique constellation of competencies and performances constitutes the third basic premise upon which this project rests. It is recognized that there are a variety of reasons why children may fail to reach any given criterion of success in the regular classroom, and that to be truly effective, programs of special education must take these basic differences seriously. Ideally, each child constitutes his own 'diagnostic' category and should have an educational program designed to fulfill his idiosyncratic needs, and in many specific instances of program design, this is entirely possible. However, it also is recognized that each child shares with certain other children similarities in the reasons why he is not succeeding in the classroom, and the designing of comprehensive intervention programs is greatly facilitated by taking these commonalities into account. The overriding concern, in any case, is to match the appropriate training procedures with the needs of a specific child in order to reach an appropriate end state. (Bannatyne, 1968; Bateman, 1967; Edgington, 1967; Frostig, 1967a; & Frostig, 1967b).

The plan of instruction designed for each child essentially has been based upon the goals that have been determined by the Hillsborough County public schools, as the primary goal of the intervention program is to deal with an individual child's learning deficiencies in such a way as to permit his successful re-entry into the regular classroom. The guidelines which reflect the philosophical underpinnings upon which the intervention program rests involves six major factors.

First, though the overall goal of the program remains the same for every child, the procedures to reach those goals would vary according to the needs of the child. For example, though it would be possible to define what any child would have to demonstrate in the way of word skills in order to maintain a minimal level of success in his third year of elementary school, a child who showed a deficit in this area that was correlated with previous environmental inadequacy would be approached in a different way than a child with perhaps the same overall level of deficit, but where the deficit was correlated with a perceptual inadequacy (Kirk & Bateman, 1962 & Steele, 1967).

Second, the specialized training is being carried out within the class setting and by the regular teacher. This is an attempt to reverse the trend to categorize and label individuals as mentally retarded, perceptually handicapped, etc. Rather than send children out to the experts, the experts instead will be brought in to consult with the regular teacher.

Third, the goal of the entire project can be seen as residing within the inter-face between the child and his learning environment. On the one hand we work with the child to develop the necessary skills that will allow him to respond to certain demands placed upon him by his learning environment, and at the same time we work with the learning environment to that it will be able to accept the skills that the child is able to develop.

Fourth, by definition, the children who are a part of the present program have demonstrated a retarded rate of development in certain crucial skill areas. There are two problems that emerge as a result of this slow development. First, the child is behind in his performance at the moment he was identified for this project. And second, even if one could envisage a magical intervention program that would bring this child up to a point where his performance level would be within the normal range, the problem would still exist of the rate of development in the future. In other words, if this child were returned to a regular class after his year within the intervention program, would he be able to maintain his gains and keep up with his peers through the years ahead? The intervention program has been focused not only on the acquisition of specific content, but also on the more general issues of the learning to learn phenomena. In some cases this has revolved around the teaching of specific strategies of learning, and in other cases it revolved around the development of achievement motivation (Bereiter & Engelmann, 1966).

Fifth, recently behavior modification techniques have been brought to bear on the problems encountered in the classroom in classes for emotionally disturbed children. These techniques have been spelled out in some detail by Hewitt (1967) and others in their discussions of the engineered classroom. The present intervention project has attempted to integrate this behavior modification approach with the other educative procedures used in an attempt to create a learning milieu in which the most efficient work is possible.

Sixth, one of the most important approaches to instruction utilized by the project staff has been the educational case conference. A group of professionals meet together to plan the strategy by which each child in the program receives a custom tailored, comprehensive education program that will move him from a position of severe failure in the classroom to a position within the normal range of success. This multidisciplinary team has included the Project Coordinator, who is a developmental psychologist with experience in the area of mental retardation and research design; the Curriculum Coordinator, who is an educator with experience as a primary level supervisor; the Curriculum Consultant who is a special educator within the

University faculty with extensive experience in curriculum development, the Clinical Services Coordinator, who currently is an advanced graduate student in the Emotionally Disturbed Program, and relevant county school personnel, including learning specialists, speech people, school social workers, and of course, teachers.

Research Design

The research design that has been evolved from the above basic premises essentially represents an attempt to answer two questions. First, by bringing to bear the knowledge that we have available in the professions relevant to the education of children, through the systematic and timely application of an intensive and comprehensive educational program, is it possible to intervene in the development of the massive patterns of classroom failure so evident in a significant segment of our elementary school population? And second, is this intervention program better carried out within a self-contained special class setting, or can it just as effectively be carried out within the context of the regular classroom milieu?

The research design contains four basic groups. Group I is receiving the intervention program within a self-contained classroom setting. Group II is receiving the intervention program within the regular classroom setting. Group III receives no special intervention program, but consists of a small, self-contained classroom setting. This group controls for the possible effects of simply having a small class with which to work. Group IV is receiving no special intervention program, and consists essentially of the regular class setting as it occurs in the county school system at the present time. The use of this design allows us to assess separately the contributions that size of class and intervention program each makes to the increased success in the classroom of learning problem children. One additional factor has been included in this design. There is overwhelming evidence that suggests that the teacher himself is one of the most important variables in determining the degree of success shown by young children who demonstrate learning problems. This fact must be taken into account in intervention research. Therefore, to assure that the results of this study are due to the intervention programs and not due to fortuitous placement of a 'super' teacher, the basic four group study is being simultaneously replicated three times. This means that the design calls for the formation of twelve groups, three groups similar to Group I above, three groups similar to Group II, etc. (see Figure 1).

The measurement of the dependent variables (i.e., the assessment of the specific abilities of the children in the project) will occur twice, at the start of the project to assess the level at which these children enter the project, and again

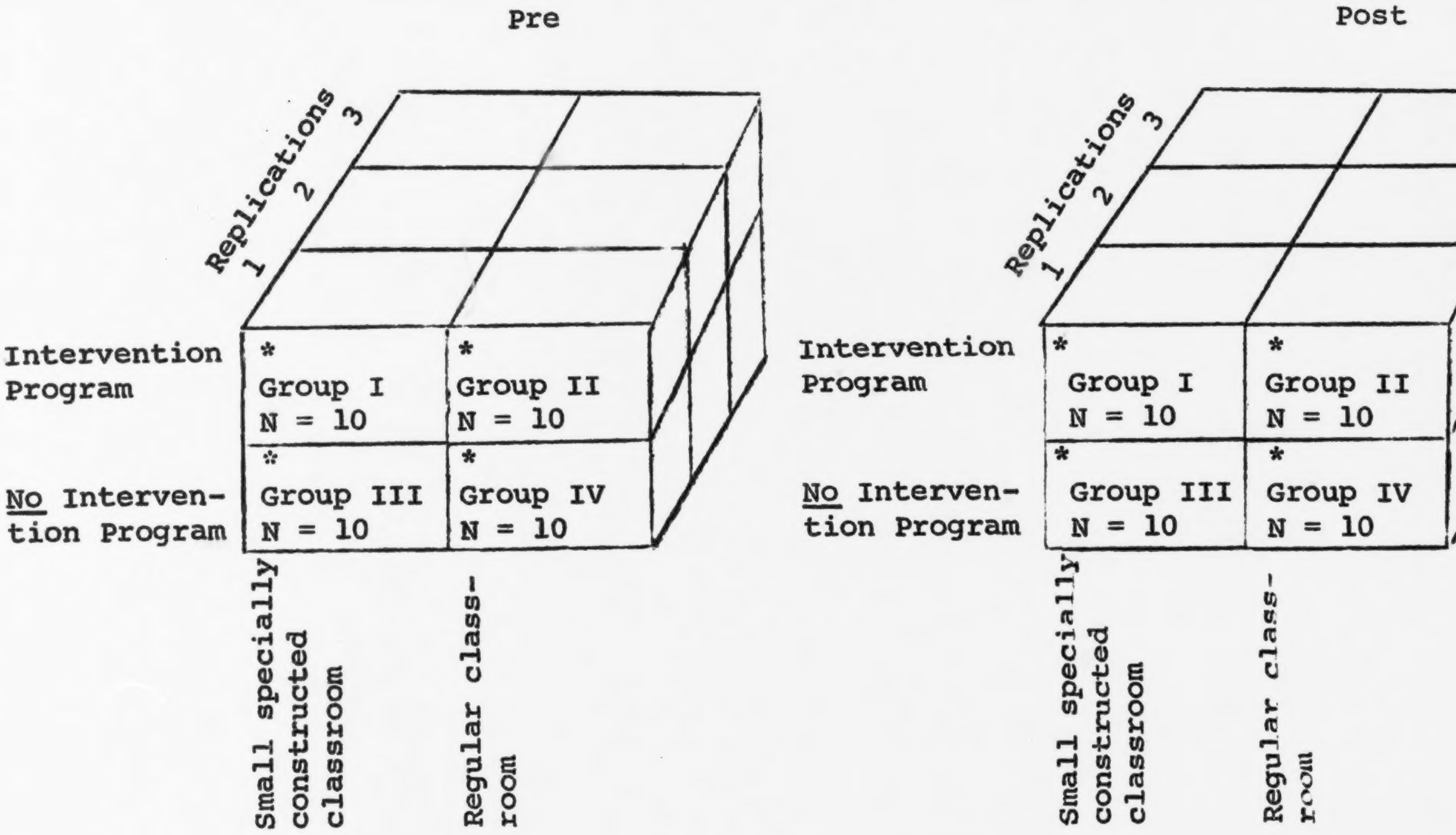
Pre
Post
Replications
1
2
3
Intervention Program
No Interven-tion Program
*
Group I
N = 10
Group II
Group III
Group IV
Small specially constructed classroom
Regular class-room

Figure 1: Research Design of the Early Identification and Remediation Project

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Performance (Dependent) Variables

1. Classroom achievement
2. Sensory-motor adequacy
3. Environmental adequacy
4. Emotional adjustment adequacy
5. Conceptual adequacy

Extended Version of Lindquist Type III Design at the close of the project, after the year of the intervention program. Thus, the complete design will involve four dimensions, three between subject dimensions (intervention program-no intervention program; small class-large class; and replications) and one within subject dimension (pre-and post-intervention). The analyses of these data will be done using an extended version of Lindquist Type III design (Lindquist, 1953).

One additional note needs to be made concerning the selection of the dependent variables for the present project. Since the entire project is based upon the belief that children can demonstrate difficulties in the classroom for a variety of reasons, information will be collected on each of these underlying causes of lack of classroom success. The approach suggested here is to conceive of success in the school classroom to be determined by a set of general factors, which combine in some way to create a success quotient (SQ) for each student. What these factors might be can rationally be set forth, and a tentative list includes the following: sensory-motor adequacy, environmental adequacy, emotional adjustment adequacy, and conceptual adequacy. Problems in the first area include visual and auditory deficits, motor response deficits as in cerebral palsy, and perceptual abnormalities as seen in figure reversals, figure-ground problems, etc. Problems in the area of environmental adequacy include cultural deprivation and environmental shift as in the cases of children who have moved to our country from a foreign country. Problems in the area of emotional adjustment adqequacy include extreme and inappropriate behavior in the classroom such as problems of withdrawal and control (acting out), and inappropriate styles of relating to others. Problems in the area of conceptual adequacy include deficits in abstract thinking, concept formation and certain types of problem solving. Assessment of each of these components leads to a better understanding of a particular child's inability to succeed in the regular classroom and should lead to insights into the most efficacious ways of intervening to reverse the established pattern of failure.

Using the multiple factor approach to learning problems, it is possible to conceive of at least two general patterns of failure. The first pattern is where a child shows a massive deficit in a single area with relative strengths (within near normal limits) in all other areas. The gross disturbance in this single area would have the effect of lowering the child's SQ to the point where he would be eligible for a special class. The second pattern of failure is where a child shows lesser deficits in several areas, but no massive deficit in any one. These lesser deficits would combine to reduce the child's SQ to the point where he also would be eligible for a special class. (A third pattern of failure, that of massive deficits in many areas, would lead to such a reduced level of classroom success that the child would most likely simply be kept out of school for the first year.)

Adequate SQ, then, is determined by a adequate level of functioning in each of the above four areas. Measurement of each of these areas leads to the development of a regression equation that indicates the relative importance of each factor in producing classroom success for a particular child in a particular classroom setting. Just as an individual child may show differential strengths and weaknesses, individual classroom situations may also show strengths and weaknesses. For instance, a particular teacher might create a class situation where a great deal of weight would be placed upon the factor of emotional adjustment, and, in fact, a child might be able to remain within the class (e.g., retain the minimum needed level of SQ) as long as he met a certain level of success on this single dimension. One strength of this manner of conceptualizing classroom success is that it allows a principal to objectively match his students' pattern of strengths and weaknesses with those of his teachers.

The measurement of these four major areas of competency can be accomplished by the use of standard instruments now available in the professional literature.

Selection of Project Children

It is intended that the present project have implications for the education of learning problem children within an entire county school system. It is important, then, that the problems identified are actually a representative sample of the whole spectrum of problems encountered in the county. This requirement has been met by selecting learning problem children from a sample of schools that draw their students from a broad cross section of the entire county school population. In this way, the results of this study will not have to be restricted to, for instance, an all black population or an all white population.

Because the neighborhoods that surround a particular school are so very important in determining the character of that school, geographic location was used as the major sampling criterion. Three major categories were established from which the final project schools were to be selected. These geographic categories included: rural schools, suburban schools, and city schools (see Table 1). Because the basic research design involves three replications with four schools in each replication, one replication was carried out with each of three types of schools. Thus, four rural schools, four suburban schools, and four city schools were selected for inclusion in the project. Additional criteria employed in the selection of project schools included: a) there had to be space sufficient to meet the needs

Table 1

Characteristics of Project Schools

School Name		Racial Mix		Occupation of Head* of Household Adaption of Hollingshead Scale 1 to 8(one is high)	Educational* level of Head of Household Grade Level
1A	Citrus Park	25:1	White	4.5	11.3
1B	Miles	100%	White	3.96	12.2
1C	Carver	100%	Black	5.9	9.9
2A	Thonotosassa	3:1	White	5.2	9.7
2B	Twin Lakes	100%	White	4.2	11.3
2C	Orange Grove	1:3	Black	6.2	9.4
3A	Cork	100%	White	4.66	10.24
3B	Alexander	100%	White	4.7	10.8
3C	Bryan Tampa	1:3	Black	5.9	9.3
4A	Palm River	100%	White	5.11	10.2
4B	Forest Hills	100%	White	4.45	11.78
4C	Edison	10:1	White	5.07	10.42

Average of 3 Intervention, Small class schools (1): Occupation = 4.8; Grade level = 11.1
Average of 3 No Intervention. Small class schools (2):Occupation = 4.5; Grade level = 10.1
Average of 3 Intervention. Regular class schools (3):Occupation = 5.1; Grade level - 10.1
Average of 3 No Intervention. Regular class schools (4):Occupation = 4.9; Grade level - 10.8

Average of 4 Rural Schools (A): Occupation = 4.9; Grade level=10.3
Average of 4 Suburban Schools (B):Occupation =4.3; Grade level =11.5
Average of 4 Urban schools (C): Occupation=5.8; Grade level=9.8

*Based on randomly drawn samples of 20 families of second, fourth and sixth grade children, a total of 60 families for each school.

of the project, which in the small classroom schools, involved space for an additional classroom; b) certain schools in the county were overloaded with special projects, and for that reason a certain number of schools were dropped from consideration; and c) there were a few principals that the county school personnel felt would not be willing to cooperate with the project, so their schools were also excluded.

A list of schools was finally drawn up on the basis of the application of the above criteria. This list contained the names of about 24 schools or twice as many as was needed for the project. At this point the school personnel simply picked the 12 of the 24 schools that they felt would be most appropriate for inclusion in the project.

One strategy in intervention research is to randomly assign subjects to the various treatment and comparison groups. However, if this procedure had been carried out in the present study, it would have meant assigning children to schools that they would have not ordinarily attended. This would have created difficulties in transportation that would have defied solution. An alternative was carried out. Rather than randomly assign individual children to the various groups, schools have been randomly assigned to groups. As an example, imagine schools A, B, C, and D, all within a single geographic category. As outlined above, these four schools would already have been selected to represent the entire first grade school population of that category. In effect, these schools have been matched on certain crucial variables, such as socio-economic class, racial balance, and urban-rural makeup. After the initial selection had been made, each of these four schools was assigned randomly to one particular treatment or comparison group. Thus, school A was assigned to the group that consisted of the intervention program carried out within a small, self-contained class-room; school B was assigned to the group that consisted of no intervention program and a regular classroom setting; etc. This meant that all children within any one given school were to receive the same treatment, but because the schools were previously matched on crucial variables, the differences that occur between groups would be due to the planned intervention programs, and not due to school differences. The random assignment of four schools to the four treatment groups was repeated in each of the three geographic locations (rural, suburban, and city).

Because there are twelve treatment groups in total, and because one school has been assigned to one treatment group, the present research design involves a total of twelve schools. The procedures to identify learning problem children was applied, then, to the entire first year student population of these twelve schools, and it was from this population that the subjects for the present study were selected. Ten children from each school was selected to participate in the study, and their assignment to the appropriate group was based upon the group assignment of their respective schools. Within each school, all ten children selected were placed in the same classroom, either within the small, self-contained classroom setting or the regular classroom setting. In total there are twelve classes of ten children each, a total of 120 children.

Ideally, intervention, in the form of special help in the classroom, should occur before a child has experienced any failure at all, that is, the intervention should begin on day one of the first grade. However, it was not possible to observe this population of first grade school children before the start of their first year. For this reason, and also the fact that many children need a period of time in which to adjust to the school situation before it is possible to determine whether or not they are likely to have important learning problems, subject identification for the present program was carried out with children after they had completed most of their first year in school. The children who were identified already had demonstrated a pattern of failure severe enough that, if it was to continue, would ordinarily signal the consideration of placing the child within a special class setting, such as an EMR class, a class for the perceptually handicapped, or a class for the emotionally disturbed.

The identification was carried out using the two criteria of psychometric test scores and teacher's recommendations. The first step in the subject identification phase consisted of the administration of the Metropolitan Achievement Test primary 1 level to all first year students in the 12 project schools. This test administration was carried out, as is usually the case in the County, by the classroom teachers under the supervision of their local testing coordinator. Each of the teachers involved in the testing had had previous experience administrating the achievement test, and had attended a work-shop on group administration of achievement tests. The tests were scored and tabulated by project personnel. Conferences were then held individually with the principals and first year teachers of each of the 12 project schools. At this time, a list of the test scores of all the children taking the test was presented to the teachers, and they were asked to select 10 children from this list who would benefit from the type of intervention program that was being planned for the upcoming school year. They were told that they could select these 10 children from those that scored within the bottom quartile of the reading and the arithmetic sub-tests of the Metropolitan Achievement Test. Three additional subject selection criteria were also used. First, it was necessary for the 10 children selected for each class to include at least four boys and at least four girls. Second, it was necessary that each child selected for the program would be entering his second year of public school education the following fall. Thus, it would have been quite all right for a child to be selected for inclusion in the project if he was to be retained in the first grade in 1969. However, children that had already been retained in first grade, in 1968, were not eligible for inclusion. A good deal of time was spent in explaining to teachers the different kinds of failure patterns that might exist among their children with the intent of conveying to them that it was necessary to have as representative a sample of as many different problems as possible in our project classrooms. The teachers were specifically told that children with behavior problems, suspected perceptual problems, problems related to culturally disadvantaged status, and problems related to mild mental retardation, would all be eligible for inclusion. It must be noted, of course, that the selection procedures for children differed somewhat as a function of type of school involved. The overall achievement level of the children from the suburban schools, for instance, was quite a bit higher than the overall achievement level of children from the city schools. This would mean that it would be possible for a child to be selected for inclusion in the project from a suburban school with an achievement level that might be considered to be close to the normal range, if he had come from a city school.

The third additional selection criterion used was the likelihood that the child would remain in the school for the upcoming academic year. In some few cases, a teacher already knew that a family was about to move out of her school district, and so a child from this family would not be eligible for inclusion in this project.

Through the application of the above criteria, it was possible to select 10 children from each school, to be included in the present project. In addition, because of the anticipated problem of attrition, five additional children were selected from each school to be used as alternates. In this way, it would be possible to replace a child if circumstances made this necessary. This turned out to be a very fortunate procedure, for in fact, several children were lost from among the original lists of 10 children. It was determined at this time that children would be replaced up to January 1st, 1970. At that time, if a child was lost no replacement would be made. (See Tables 2 and 3).

Teacher Selection

The selection of teachers was a difficult procedure and not entirely successful. Initially, a set of criteria had been established that would provide the basis on which a gross matching of teachers for the 12 project groups could be carried out. However, the application of these criteria to the actual

Table 2

Characteristics of Project Children

School Name	Sex Characteristics	California Test of Mental Maturity IQ	
		Language	Non-Language
1A Citrus Park	6 boys, 4 girls	89	93
1B Miles	4 boys, 6 girls	98	97
1C Carver	6 boys, 4 girls	76	80
2A Thonotosassa	6 boys, 4 girls	85	86
2B Twin Lakes	7 boys, 3 girls	90	89
2C Orange Grove	7 boys, 3 girls	78	84
3A Cork	4 boys, 6 girls	94	94
3B Alexander	6 boys, 4 girls	91	88
3C Bryan Tampa	5 boys, 5 girls	69	63
4A Palm River	5 boys, 5 girls	91	87
4B Forest Hills	5 boys, 5 girls	95	83
4C Edison	5 boys, 5 girls	84	85

Average Intervention, Small Class (1) CTMM Language IQ=88; CTMM Non-Language IQ=90.
Average No Intervention, Small Class (2) CTMM Language IQ=84; CTMM Non-Language IQ=86.
Average Intervention, Regular Class (3) CTMM Language IQ=85; CTMM Non-Language IQ=82.
Average No Intervention, Regular Class (4) CTMM Language IQ=90; CTMM Non-Language IQ=85.

Average Rural School (A) CTMM Language IQ=90; CTMM Non-Language IQ=90.

Average Suburban School (B) CTMM Language IQ=94; CTMM Non-Language IQ=89.

Average Urban School (C) CTMM Language IQ=78; CTMM Non-Language IQ=78.

Table 3

Characteristics of Project Children

School Name		Metropolitan Achievement Test Stanine Scores Word Knowledge	Word Discrimination	Reading	Arithmetic Concepts
1A	Citrus Park	2	2	3	3
1B	Miles	4	3	5*	5
1C	Carver	2	2	2	1
2A	Thonotosassa	2	2	3	2
2B	Twin Lakes	2	2	2	3
2C	Orange Grove	1	1	3	2
3A	Cork	2	3	3	2
3B	Alexander	3	4	2	4
3C	Bryan Tampa	1*	1*	1*	1*
4A	Palm River	2	2	2	4
4B	Forest Hills	2	2	2	2
4C	Edison	2	2	3	4

* Testing conditions made test scores invalid.

Average Intervention, Small Class (1) MAT Stanines
WK = 2.7; WD = 2.3; R = 3.3; AC = 3.0.
Average No Intervention, Small Class (2) MAT Stanines
WK = 1.7; WD = 1.7; R = 2.7; AC = 2.3.
Average Intervention, Regular Class (3) MAT Stanines
WK = 2.0; WD = 2.7 R = 2.0; AC = 2.3.
Average No Intervention, Regular Class (4) MAT Stanines
WK = 2.0; WD = 2.0; R = 2.3; AC = 3.3.

Average Rural School (A) MAT Stanines
WK = 2.0; WD = 2.3; R = 2.8; AC = 2.8.
Average Suburban School (B) MAT Stanines
WK = 2.8; WD = 2.8; R = 2.8; AC = 3.5.
Average Urban School (C) MAT Stanines
WK = 1.5; WD = 1.5; R = 2.3; AC = 2.0.

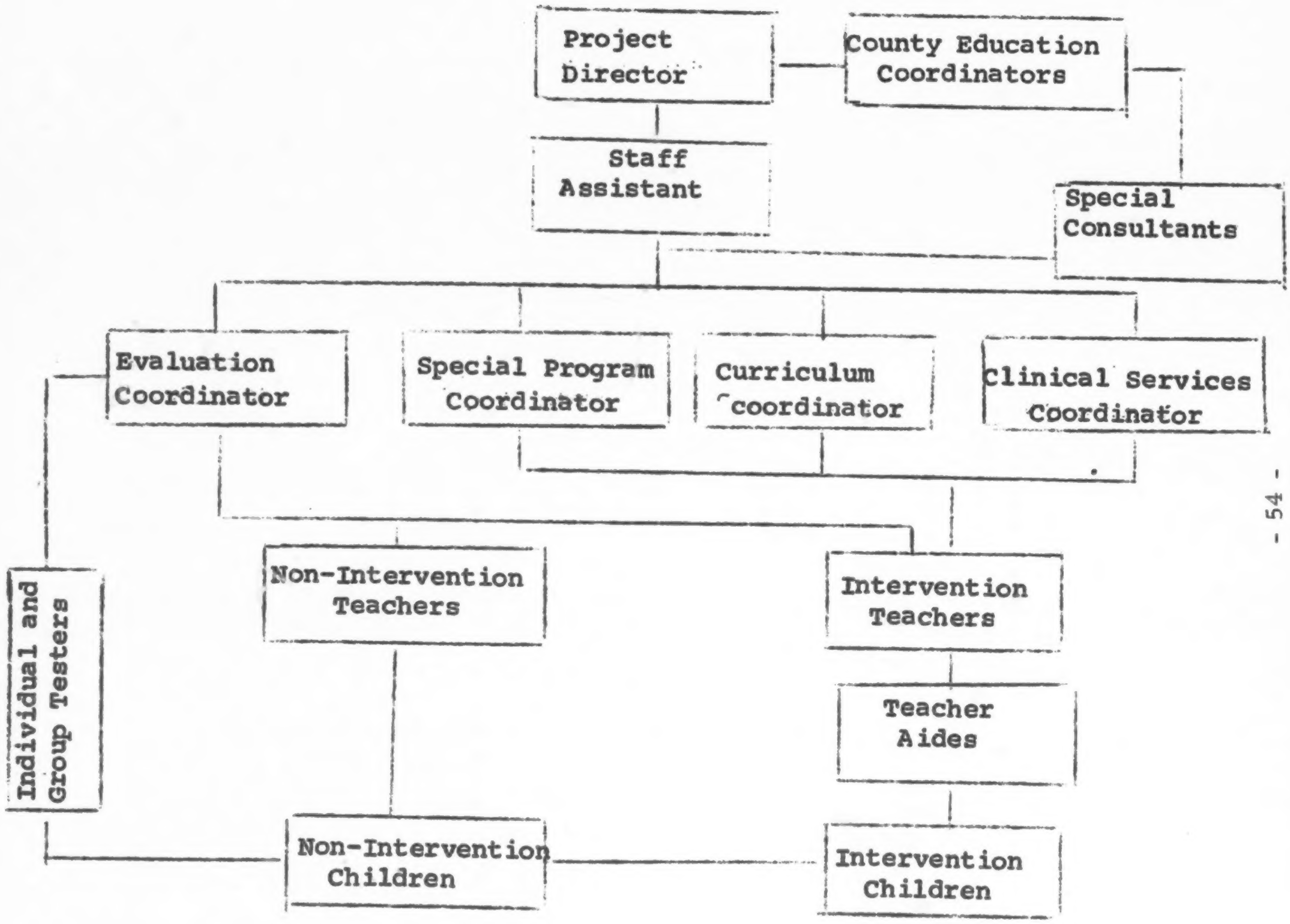
selection procedure turned out to be impossible, as it was necessary to choose the project teachers from among a very small group of candidates. The final decisions for including teachers in the project were based upon the recommendations of the county school personnel, including, of course, the principals under whom the teachers would be working. Once a teacher had been hired, the experimental group to which she was to be assigned was determined completely by the assignment of her school.

Description of Project Personnel

The final step in the planning phase of the intervention project was to complete the staffing of the project personnel. The final list of people (a total of 79) relating in some way to the various project programs included individuals who ranged from those who were involved 100% of their time for the entire duration of the project to those individuals who were involved in a single task that lasted for only a few hours. The people involved in the project also ranged from those that were paid for 100% of their time to individuals who were not paid directly at all, but rather derived other kinds of benefits for their project participation. The administrative flow-chart portrays graphically the relationships among the central project personnel (see Figure 2).

Figure 2

Project Administrative Flow Chart


Project Director
County Education Coordinators
Staff Assistant
Special Consultants
Evaluation Coordinator
Special Program Coordinator
Curriculum coordinator
Clinical Services Coordinator
Individual and Group Testers
Non-Intervention Teachers
Intervention Teachers
Teacher Aides
Non-Intervention Children
Intervention Children

The Project Director has the responsibility of coordinating the activities of all people involved in the project. He assures that each component of the project is working smoothly and fits into the total operation. The Project Director also chairs the weekly staff meeting at which time all the professional people involved in the project come together to discuss the problems they are facing and the progress they are making. The Project Director has ultimate fiscal responsibility for the project.

The Staff Assistant has taken over the responsibility of working out the relationships between the project and various administrative units of the University and of the County School System. She has created a permanent office for the project which serves as its home base. She is responsible for the maintenance of all records and monitors the input and output of information concerning the project.

The Curriculum Coordinator provides supervision for the project teachers in major areas of the school curriculum such as reading and mathematics. Her role is also that of general trouble-shooter, and through her extensive school background is an important part of the information exchange between the classrooms and the other project personnel.

The Curriculum Consultant, an assistant professor in the Department of Special Education at the University of South

Florida, has as his major responsibility the development and implementation of the instructional program component of the project. In addition, he has chaired a series of professional seminars attended by all intervention teachers and their aides.

The role of the Family Consultant is twofold: first, she has the responsibility for interviewing each of the 120 project families obtaining from each general background data, and second, she has the responsibility to make this information available to the appropriate project and school personnel. In the cases where she has interviewed families with children in the intervention groups, she has had the responsibility for explaining to them the purposes of the project. Her interviews consist of the administration of a questionnaire to the major care-taking person of the family. In most cases, of course, this person is the mother of the child, but in a significant number of instances the major care-taking person has been a relative, such as a grandmother, or even a friend or neighbor. The purpose of the interview was to make the project and school personnel aware of problems that existed in the home that might be contributing to the child's difficulty in school. The family consultant did not engage in counseling of the mother on how to handle her child at home. It was felt that if counseling was needed, it could be provided under the direction of the Clinical Services Coordinator.

The Clinical Services Coordinator's major responsibility is to coordinate the psychological and education services for the project children. This task is described more fully in a later section.

The Evaluation Coordinator has the responsibility of supervising the assessment of the progress of the project children, through both group and individual testing procedures.

The selection of the teacher aides was carried out in close cooperation with the coordinator of cooperative education students at the University of South Florida. The teacher aides were selected from among a large number of applicants who all had certain qualifications in common. First, each applicant had made the career decision that she was to become a teacher after finishing her undergraduate schooling. Second, she was a major in education or an education related field, such as psychology. Third, she had finished some basic work in the field of education, but had not yet entered into the formal internship phase of her training. This meant that applicants were all end-of-the-year sophomores or beginning-of-the-year juniors. Other criteria used in the selection of the teacher aides were satisfactory academic achievement, enthusiasm, and judged over all ability to provide a good behavioral model for the project children. Each aide works full time in her appointed classroom, and her schedule is the same as her regular classroom teacher.

Guidelines were established for the six intervention teachers in the use of their aides, although it was recognized that the specific responsibilities for the aides would of necessity be developed individually by teachers as a function of the structure of the learning environment in each classroom. First, the aides were not simply clerks to be given the menial tasks of the classrooms, such as material preparation and administrative paperwork. Wherever possible the aides were to be integrated into the actual teaching activities going on in the classroom and were to be viewed by the teachers as a crucial part of the total educational delivery system. Second, in the large intervention classrooms the teachers were informed that whenever possible, their aide should focus her activities upon the ten project children.

Other project personnel will be described under their relevant intervention components.

Orientation of School Personnel

A series of orientation meetings were held with the principals and the teachers of the six intervention class-rooms during the middle of August, 1969, before the county public school system opened for business for the current academic year. During these meetings the intervention project was carefully described and the major goals outlined. Several major points were made at these meetings. First, it was stressed that the over-riding goal of this project was to prepare the project children for successful adaptation to the regular class-room. The intervention class-rooms were to be conceived of as special opportunity class-rooms where children were placed who had experienced difficulty in making sufficient academic progress within the normally available school milieu. This new educational experience was designed, however, to minimize the degree of isolation from the educational mainstream that these children had begun to experience, rather than to increase it by constructing a special environment that had as its main effect solidifying and formalizing this isolation, as is the case, unfortunately, with some of our current "special education classes". It was explained that no service would be rendered to a child of seven if he was labeled educable mentally handicapped, or emotionally disturbed, etc., before he had been given a chance to perform in a learning setting where his individual strengths and weaknesses in academic and non-academic areas were carefully attended to and carefully utilized in the development of the program of instruction to which he was to respond. The children selected for inclusion in the project intervention classrooms were not being "left back" for a second go-around in first grade, nor were these children being socially promoted to a regular second grade classroom. Rather, they were being placed in what can best be described as a special opportunity class room where the progress they had made during the first year of their school experience would be built upon, both in terms of specific, relevant curriculum content, and in terms of acquiring general learning how to learn behavior, always with the understanding that next year they would be placed again within a regular class room at the appropriate level.

The second major point discussed at these orientation meetings was that the over-all curriculum to be used for the special class rooms would be basically what was prescribed by each of the individual schools. It was not the intent for project personnel to provide teachers with a totally new curriculum, but rather to demonstrate that children could be given sufficient specialized help through up-grading what normally would go on in normal class rooms to enable them to be retained in the education mainstream as successful students. The goal was not then to provide esoteric, unattainable, curriculum components, but rather to up-grade what was already available. To provide children with some special curriculum, for instance, in the area of reading, might actually increase the amount of difficulty that they would experience in returning to their regular class rooms the following year.

The third major aspect of the orientation meetings had to do with a brief outlining of the various intervention components, which included teacher aides, in-service workshops, supervision provided by a curriculum coordinator, twice monthly professional seminars directed by the curriculum consultant, a diagnostic testing program, a family consultant, availability of special instructional materials, clinical services staffing, and various special programs, such as a speech improvement program, a motor development program, a visual perception program, and a behavioral class room engineering program.

And finally, the problem was discussed of how to sell the parents of the proposed target children on the intervention project. It was decided that the final responsibility of introducing parents to the project would rest with the various school administrations. In every case where it was possible, the principal or classroom teacher was to make the initial contact with the parent, preferably through in-person communication. This communication was followed up with an interview by the family consultant, and it was at this time that specific details concerning the nature of the intervention program could be given out to interested parents. In only a single case did a parent decide not to allow her child to become part of the program. The reason she gave for her refusal was that her son might be labeled mentally retarded if it were known that he had been included in any type of special class.

During this pre-school period, orientation meetings were also held with the principals and teachers of the non-intervention class rooms.

The three teachers in the small, non-intervention classrooms were simply told that they were participating in a study to see if the children who had been identified as learning problem children could be helped by identifying their problems early in their school careers and then providing them with the intensive instruction made possible by small teacher-student ratio classes. They were told that periodic meetings would be held when they could discuss any problems that might arise in their class rooms, but that no new demands would be placed upon them in carrying out their usual class room activities. That is, they were told that whenever possible they should take advantage of this opportunity to provide their children with individualized instruction utilizing the usual curriculum provided by the public school system.

The teachers in the regular size, non-intervention classroom groups were told that they were part of a larger project that had to do with the identification and education of learning problem children. They were told which children in their class rooms were to be the control children and they were told that these children would be assessed at various points during the year. They were also told that their role was to provide educational services for their children as they would ordinarily do. Certainly the effect of talking with these teachers and orienting them to their role in the total project may have had some effect upon their handling of the children. Though this effect probably was not very great, it was necessary to indicate to both intervention and non-intervention teachers that they would be observed to partially control for the Hawthorne effect.

The teachers and principals in the three regular classroom schools were of course disappointed that they had not been chosen for other types of participation in the project. However, they were quite willing to play their role because they saw the possibility of the results of the project leading to county-wide change in the structure of education for elementary school children.

Components of the Intervention Package

The intervention package described in its general aspects in a preceding section consisted of six major components. One, the use of teacher aides, has already been described in some detail. Another significant component in this package has been the up-grading of teaching in the various intervention classrooms. It was part of the philosophy upon which the project rested that a significant portion of the intervention program would be determined by the curriculum already in use at the project schools. Of course, this meant that to some extent the quality of instruction would be dependent upon the type of curriculum prescribed by the school and of course by the teachers' own competencies. It was felt that the over-all level of competency could be increased in two ways. First, the curriculum coordinator, an experienced teacher in her own right, was to meet with teachers on a regular basis to provide supervision in the major curriculum areas. And second, a series of training workshops were held for all teachers and their aides. The design of these workshops was worked out in cooperation with the county school system and in most cases utilized their professional supervisors. Workshops were held on such topics as: psycho-motor development; music instruction; the use of audio-visual materials in instruction; literature and the use of puppets in a general language arts program; and behavioral management in the classroom)for a complete list of workshops, see Table 4).

The instructional personnel responsible for the workshops were oriented toward providing teachers with procedures and activities that could be utilized in the classroom, rather than attempting to give them an over-all view of the various curriculum areas. In every case, hand out materials were provided teachers which further exemplified and clarified the various workshop topics.

Table 4

Project Workshops

Dates	Topics
Saturday, October 11	1. Introduction to diagnostic prescription Model of instruction 2. Psycho-motor development
Wednesday, October 15	Music instruction
Saturday, October 18	AAAS science program: Part I
Wednesday, October 22	Use of interest centers and experience charts in reading instruction
Saturday, October 25	AAAS science program: Part II
Wednesday, October 29	Use of audio-visual materials in instruction, including; listening centers, tape recorder, overhead projector, and language master
Wednesday, November 5	Literature instruction: The use of puppets in story-telling
Wednesday, November 12	Art instruction
Saturday, November 15	Use of behavior modification in the classroom
Wednesday, November 19	Identification and management of speech problems in the classroom
Wednesday, December 3	1. Social studies instruction 2. Mathematics instruction
Saturday, December 6	Perceptual-motor development

In most cases the workshops were very helpful and teachers were enthusiastic to receive what essentially amounted to a refresher course in these various curriculum areas. Follow-up was provided to each of the workshops through the curriculum coordinator. In certain cases, the workshop presentations were used as introductions to special programs that were to be carried on by the project personnel, for instances, in the areas of behavior modification, speech problem identification, and perceptual-motor development.

Another important component of the intervention project has been the purchase of special materials needed by teachers to pursue their various instructional goals. The purchase of these materials was governed by three criteria: a) Materials that ordinarily would be provided by the school system were not to be purchased with project money. Basic items like text books and such were to be purchased through regular channels.
b) Materials to be purchased had to be incorporated in some set of curriculum goals as proposed by the teacher. c) Items to be purchased had to be attainable easily and without great cost.

The materials purchased up to the present point generally have fallen within two categories. The first category has to do with clearly identifiable professional materials to be used for the implementation of curriculum goals that were not ordinarily obtainable through the usual school sources. For instance, one teacher felt that the instruction of phonics could be facilitated by the use of an additional set of materials not ordinarily used in her school. The second general category has had to do with rather innovative and creative attempts to set up learning situations that required some general back-drop. Examples of these types of materials include various types of construction materials.

One very interesting sidelight that has occurred as teachers have been assisted in obtaining the materials that they needed to facilitate their instructional program has been the variability that existed among them as to their resourcefulness and independence. Some teachers seemed to turn up needed materials from every corner of the school building, while other teachers were willing simply to do without a material because it was not within their immediate vision. Undoubtedly this would be an important dimension in the evaluation of teacher effectiveness. It would not be surprising that this teacher difference carried over into other perhaps even more important areas such as trying to obtain for their children the use of available facilities in the school system, such as social work services, psycho-diagnostic services, etc.

The clinical services program has developed into one of the most important components of the intervention package, and is now being coordinated by the Clinical Services Coordinator. The program centers around the clinical case conference, the primary purpose of which is to provide a forum to discuss the difficulties that individual children are experiencing in their various classrooms. The format of these conferences has gradually changed over the past several months to the point now where typically from two to four children from one or two schools are staffed at each meeting. Personnel involved at these conferences include the classroom teachers, the aides, the school principals, in many instances the school social workers, the school speech therapists, the school learning specialists, and in general, anyone else who could contribute to the identification and remediation of the problems of the children discussed for that day. By involving these professionals, it is possible to bring together information concerning a child's specific difficulty from many different points of view, and thus to broaden the base of information needed to produce solutions to the problems discussed.

Another important purpose of these conferences is to coordinate the psychological and education services for the project children. In many cases a child and his family may be receiving services from a wide variety of local and state agencies, such as the county school system, the county and state welfare and health agencies, and even from certain private agencies, with each agency acting autonomously without a picture of the total services involved. In these cases the Clinical Services Coordinator acts as a central clearinghouse for all the information that exists pertaining to a particular case, opening up lines of communication between the various relevant agencies.

Another point is worth mentioning in this context. An attempt always is made to provide services for the project children in such a way as to utilize existing community agencies rather than to try to provide the services through the project. It is recognized that the current project will be in existence only through the end of the 1969-1970 school year and therefore, to have services continue beyond this point it is necessary to have them integrated within existing, ongoing, service agencies.

A further goal of these case conferences has been to attempt to involve the department of school social work in a training program designed to introduce teachers and principals to the types of procedures required to obtain services from the social work department. In some cases, the communication between the department of school social work and the individual schools requiring their services has not been particularly well worked out. An attempt was made during the case conferences to establish a model procedure which teachers needing social work services could follow even after the project had ceased to exist. A further activity supervised by the Clinical Services

Coordinator has been the organization in each of the intervention classes small activity groups especially for those children who need the experience of learning more effective social skills. The majority of these children have a very low self concept which interferes with their ability to relate in more positive ways with their peers. This difficulty has an important effect on their over all adjustment in school. The selection of children to participate in the groups was made primarily on the basis of teacher recommendation, with special consideration given to how each child might benefit from this type of learning experience.

The groups were designed with the major goals of 1) providing supervised activity after school, 2) structuring activities which would focus on building a more positive self concept, and 3) providing opportunities for developing more effective coping devices for handling different problem situations. The degree of structure, the choice of activity, and the materials used have been generally modified to best meet the needs of the particular group involved. The groups in the inner city schools, for example, have required structured activities focusing on the very basic skills of attending to tasks, learning to share, taking turns, etc., whereas, more sophisticated groups have been able to work on more unstructured activities such as recognizing and becoming more comfortable with their feelings, sharing experiences, and learning to understand some basic principles of behavior, thru such activities as expressive play with dolls, open discussion, various types of role-playing, etc. The materials used in these activity groups include, *Why People Act as They Do* (Preventive Psychiatry Research Program, 1967), *Easy Skits for Youngsters* (Ames & MacDonald, 1964), the Fassler series (1969), and *Puppet Playmates* (Instructo 1968).

Following are some further examples of specific activities that have been provided as part of the clinical services component to the intervention project.

The first activity to be described had to do with providing one of our project children with a big brother. The rational behind this service was to provide one little boy with a masculine model with whom he could identify. The home situation was such that the father was absent and the child seemed to show some sexual identification problem. It was noticed in the classroom, for instance, that this little boy was unable to make a deep commitment either to people or to activities. It was hoped that through providing a masculine role model he would be able to establish some commitment to a more meaningful mode of responding. At the same time, the clinical social services person has worked with the mother in an attempt to help her restructure her relationship with her son. Up to that point, she seemed to have been unable to take a firm line in any particular direction, and the child was developing into a first class behavior problem in the classroom.

A second example of an activity within the clinical services component involved an attempt by the Clinical Services Coordinator to help a parent accept the possibility that her little girl had a serious visual problem. Apparently this information had been conveyed to the parent before by the little girl's first grade teacher, but no action had been taken, and it was through the assistance of the project personnel that the mother was able to make contact with a competent optometrist.

A final example of the utilization of the Clinical Services Coordinator has been her general screening of all the project children for possible serious behavior problems. In those few cases where it was generally agreed that a child was performing under extreme stress, recommendations were made for more intensive intervention. For example, one little boy was intimately involved in a tragic home situation that involved an attempted suicide by his father and it was felt that he definitely needed some opportunity to face the obviously frightening implications posed by this experience. He and his mother were both referred to the county guidance center for a more in-depth assessment of the situation and for possible longer term remediation.

A special program in the area of speech improvement was developed and implemented as a part of the total intervention package for essentially two reasons. First, it became obvious that the speech performance of the project children constituted an exceedingly important area of classroom functioning, and was clearly related to achievement in most other performance areas. And it was also clear, on the basis of the pretesting with the Templin-Darley Articulation Test, that the incidence of speech problems in the project sample was quite high. Second, it became obvious that the project teachers did not systematically include speech improvement work within their formal instructional programs, though of course some of this work was included in their phonics instruction. It was decided to develop a speech improvement program for each of the six intervention classrooms utilizing Margaret Byrne's (1965)program "The Child Speaks". Initially, the program was introduced to the teachers by one of the Hillsborough County Speech Supervisors. At this time the program procedures and materials were described and a few sample lesson plans were constructed.

It appeared important to the project staff to coordinate the speech improvement work with the work of the local speech therapists and to this end orientation meetings were arranged, first with the speech supervisor and her materials chairman and later with the speech therapists serving in each of the intervention schools. In this way, it was possible to coordinate the total speech services offered to the project children. Meetings were then scheduled with the teachers and their aides and the speech program was described in detail. At these times it was made clear to the teachers that a speech improvement specialist would visit each classroom on a regular basis and would assist in the implementation of the speech program. Each child in each of the six intervention classrooms has been tested each week for proficiency in the sound presented for that week.

It is quite obvious that some of the project children were able to produce all of the program sounds correctly prior to the start of training, but one of the major purposes of this program was to make all the children more aware of correct articulation and generally acceptable speech habits. Those children who were not able to produce a sound correctly were given special help, either through the school therapist, the speech improvement specialist, or simply through the stimulation of the speech improvement program.

The behavioral management constitutes another important component in the intervention package. It has been developed in two phases. The first phase began with the introduction of the techniques of behavior modification to all project staff at a workshop. At this time, each teacher was instructed to choose one behavior of one child in her classroom that she considered to be worthy of change and then a brief program of change was worked out for her involving the techniques of behavior modification. This phase of the behavioral management program met with varied success. In one case where the teacher had picked out the disruptive behavior of a very aggressive, acting out child, rather great success was achieved. It was decided that the behavior modification program for this one child was to take place every school day from 9:00 till 10:45. During this time, the teacher agreed to ignore all disruptive behaviors of this child except for the most extreme behavior when the child would be simply removed from the class and taken to the principal's office. Positive reinforcement in the form of candy and social approval and in some cases small trinkets were given for approximations of the target behavior which was sitting in the chair behavior, working on some task. The contigency initially established was to reward the sitting, working behavior every 30 seconds. Gradually, the expectations became more and more stringent and it was possible at the end of this three week program to demand up to twenty minutes of continuous work from this child. During this entire time a graduate student was present in the classroom to collect data and to assist the teacher in arranging the contingencies.

Some of the other intervention teachers found it more difficult to follow the programs designed for them and as a result reported far less success. The usual arguments and complaints were received about their programs such as, they felt uncomfortable rewarding a child for doing something that he should already be doing, and that they simply did not have the time to spend with one child that the program demanded. The project staff is continuing to work with each of the teachers on an individualized basis in helping her to mount some type of behavior modification program using the principles of positive reinforcement.

One of the six intervention classrooms has been involved in a second phase of the behavior management program. It was in this school, a city school, where it was felt that the over-all structure of the classroom was chaotic enough so that perhaps a behavior management program should be utilized on a class wide basis. The teacher of this classroom was particularly interested in having assistance in structuring her classroom and motivating the children to do academic type tasks. Homme (1969) has provided the model from which our program was developed.

A base line was established over a number of days of the frequency of disruptive behaviors engaged in by each child in the classroom, amount of time spent in appropriate behavior by each child, and the teacher and aide reaction to each type of child behavior. Each of two observers in the classroom observed simultaneously two children for five minute segments two or three times each morning, (a total time of 10 to 15 minutes observing each child). Reliability of observation was obtained by having two observers record the behaviors of the same child for one of the series of five minute segments. The behavior rating scales that were utilized in the establishment of base rate data are contained in Table 5. In general, the program involved the establishment of a set of contracts for each child involving his work for the entire day. The contracts for each student were actually written out on three by five index cards and were geared carefully by the teacher to be consistent with the individuals level of performance. Thus, it was possible for one student to fulfill a contract that involved his entire mathematics lesson for the day, whereas another child had his mathematics lesson divided up into a number of separate contracts each dependent upon the known performance levels of the individual children. After a contract had been fulfilled, the child went to the teacher and had the contract validated and then chose an item from a reinforcement menu for his reward. At the end of the day,

Table 5

Description of Behavior Rating Scales

Disruptive behavior is that which substantially interferes with the completion of an assigned task.

The following types of disruptive behavior are recorded by placing a check mark in the appropriate space for each occurence observed.

1. Motor

There are a number of disruptive movements which may be performed by the child while he is seated at his desk. These are as follows:

Kicking legs - this is considered disruptive only when the child's foot or leg strikes another object, such as his desk or chair. (Many children will kick or swing their legs idly while still engaged in an appropriate task.)

Rocking chair - this refers to any occasion when the child causes the legs of his chair to leave the floor. (However, ordinary adjustments of the chair made by the child to sit more comfortably are not considered disruptive. This also applies to movements of the chair which may be necessary before the child can leave his seat.)

Turning around - this is any instance where the child turns his head to look at something behind him which is not related to his present task. (This does not apply when a child simply looks up or to the side or when the child looks back at another child who is answering a question.)

Waving arms - any fairly continuous movement from the shoulders or elbows which could not reasonably be performed while still attending to the task at hand. (This does not include movements from the wrist.)

Table 5 (continued)

Movements primarily performed while away from the desk are as follows:

Leaving the chair - any instance in which the seat of the child's pants is no longer in contact with the seat of the chair, including those times when a child tucks his leg underneath him and sits on it, rather than sitting directly on the chair, as well as walking away from the chair.

Failure to return to the chair and sit down - when a child has left his desk for a legitimate reason, but delays his return by standing or walking around, he is displaying disruptive behavior. When a child has left his seat without permission (and receives a check), then returns to the area of his desk but fails to sit down, he is displaying a separate inappropriate behavior.

2. Verbal

Task-related - When the teacher has specified (or begins a familiar task where it has been previously specified) that the children must raise their hands and be called on before speaking) any verbal behavior that does not meet these prerequisites is considered disruptive. This includes task-related comments as well - if the child says, "I know the answer" or "This is fun" without being called on, his behavior is not appropriate. (However, when the teacher has specified that anyone who knows the answer may speak out, then any reasonable answer constitutes task-related verbal behavior. Incorrect answers are not necessarily disruptive.)

Non-task-related - talking to oneself or others.

3. Aggressive

This refers to any intentional physical contact with another child which results in harm or annoyance to that child. Examples are hitting, kicking, jabbing, tickling, etc.

Table 5 (continued)

4. Disturbing property

This refers to instances where a child intentionally manipulates objects that do not belong to him, such as school property or another child's property. The manipulation may result in the mere movement of articles or pieces of furniture, or it may result in throwing or breaking them. (This does not apply to instances where the child makes appropriate use of materials that have been assigned to him, or materials that the teacher has specified to be accessible to the class as a whole, such as books on the bookshelf, crayons, etc.).

5. Noisemaking

Generally, any sound louder than that produced by a light tapping of the fingers is considered disruptive.

Vocal - this refers to all non-verbal sounds created with the vocal cords, such as humming, or imitations of animal sounds. (It does not include isolated speech sounds, such as pronunciations of individual letters or parts of words. When these occur, they constitute verbal behavior (Category #2 above) and must be judged according to the standards for that category.

Non-vocal - this refers to sounds produced by other parts of the body such as hands and feet, or by manipulation of objects such as chairs and books. In this case it is important to consider both the intensity and the purpose of the sound. For example, the squeaking of a chair is a relatively loud noise, but if it occurs because the child was leaving his chair, then it is not considered disruptive. On the other hand, the tapping of a pencil on a desk is not nearly so loud, but as it serves no task related purpose, it is considered inappropriate and potentially disruptive.

Table 5 (continued)

Teacher and Aide Responses

The responses of the teacher and aide to a child's disruptive behaviors are also recorded. The first initial of the person responding is used with a number code for responses.
1 = looking at the child; 2 = speaking to the child;
3 = going over to the child; and, 4 = physical contact.

Appropriate Behavior

The amount of time the child is engaged in appropriate behavior is also recorded by means of a stop watch. Appropriate behavior is defined as task-oriented behavior and as behavior other than that defined as disruptive behavior.

Teacher and aide responses to appropriate behavior are recorded in the same manner as responses to disruptive behavior.

the child turned in to the teacher the total number of contracts that he had fulfilled and he was then able to select from a second reinforcement menu an activity that he found particularly attractive. An attempt has been made to assure that each child was able to collect and fulfill approximately the same number of contracts every day. If the child has not fulfilled a sufficient number of contracts each day, the error lies within the construction of the program, and not simply within the child. The immediate reinforcement menu and the end of the day reinforcement menu were established by interviewing each child and trying to ascertain what kinds of material and activities he most enjoyed. A section of the classroom has been set aside as a reinforcement area and it is in these areas that the children engaged in pleasurable activities with a minimum of disruption for the rest of the class.

The observers for the behavior management program have continued to record the number of disruptive behaviors, the amount of time engaged in appropriate tasks and the teacher and aide reactions throughout the entire program and some preliminary data is available for an evaluation of the program's effectiveness. The mean number of disruptive behaviors per child per minute of observation has decreased from a mean of

1.0 during the base rate period to a mean of .4 during the period of time when the program has been in effect. This means that the over-all number of disruptive behaviors has been more than halved. (See Figure 3).

One of the most exciting aspects of this total behavior management program has been the enthusiastic participation of the teacher. This enthusiasm has led to some solid suggestions for improving the program. For instance, she felt that it was quite important for the continued interest of her children in the program that they be allowed to gradually take over the management of the contracting. Thus, a child should be involved in the decision of what he should be doing during the day, for how long, and for what reinforcement. This teacher has also been quite creative in bringing behavior other than academic performance under the control of the contingency contracting. For instance, at the end of each day she writes a contract for each child that states he will be in school at 8:30 the next morning. This has been a highly effective way of having children at school on time.

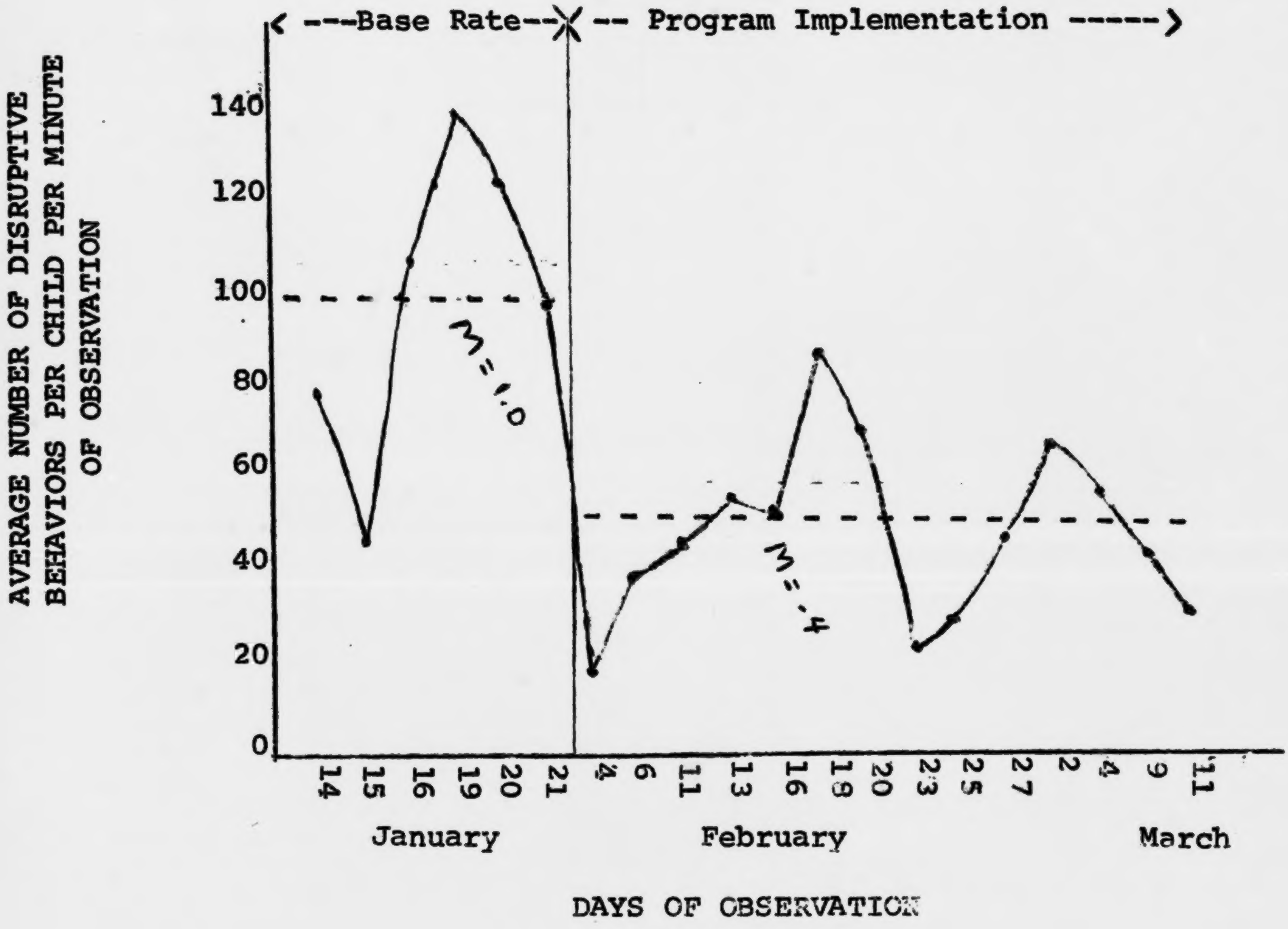
Another suggestion that this teacher has made is to keep the writing of contracts quite flexible. Some of the contracts can be written out before the day begins and would incorporate the expectations of the teacher for her children. However, some

FIGURE III

DISRUPTIVE BEHAVIORS IN THE

CLASSROOM

(N = 10)



of these contracts must be modified during the day because it is impossible to predict exactly what is going to happen during the day that influence a child's ability to perform various tasks. With this increased flexibility, it is possible to assure that each child will be able to fulfill a certain number of contracts each day.

The visual-motor perception development training program, the final component of the intervention program to be discussed, has been divided into two general areas, gross motor training and visual perceptual training. The gross motor training program utilized in the present intervention project, developed by Mr. Basil Gaar and Mr. Frank Belgau (Belgau, 1967, has two major purposes. First, it can be used as an important motivational assist to the overall instructional program. The tasks are constructed so that every child not only can succeed, but can actually sense his improvement as it occurs through practice. The second purpose is to provide children, through the presentation of a carefully programmed sequence of motor activities, experiences that help a child acquire more efficiency in movement, develop greater self-awareness, improve posture, and in general make a child more responsive to his surroundings. These motor experiences may contribute significantly to the formation of a base for other learning.

The second phase of the visual-motor perceptual development training program is based upon the Frostig (1964) program. The Frostig program is an academic free visual perceptual training program which is readily accepted by young elementary school pupils. Its activities essentially build upon the gross motor program. It is felt that the training results from the gross motor training program need to be channeled toward a level where they are directly applicable to basic visual functioning needs for achievement. It is here that the Frostig program has its greatest relevance as it brings into focus the five major areas of visual functioning which are related to learning through symbolic language. They are: visual-motor, figure-ground perception, perceptual constancy, spatial relations, and position in space. These areas of visual functioning are directly related to the basic requirements for the development of reading and math skills.

Both of these programs are ongoing in each of the six intervention classrooms. However, the exact nature of the programs differ depending upon various factors such as the needs of the children in each of the classrooms, and the competencies and the interests of the teachers and teacher aides in each of the classroom.

There are five major aspects to the evaluation component of the intervention project. The first aspect has to do with the collection of the group administered achievement and intelligence test data. The Hillsborough County School System administers the Metropolitan Achievement Test, (Hildreth, 1959), and the California Test of Mental Maturities, (Sullivan, et al., 1962) each fall to all grade levels. It was decided to go ahead and collect this type of data from the project children even though the problems involved in group testing of seven-year-olds throws into question the validity of the scores. In all of the project classrooms an attempt was made to alert the teachers to the problems of group administrations of tests and as a result the testing situations were constructed to maximize testing rapport. All group testing was completed by mid-October. The group data from these two tests were scored and analyzed by the county Data Processing Center and then returned to the Project Director.

The second aspect of the evaluation component consisted of individually administering a battery of psychological tests to each of the 120 project children. The tests administered included: The Slosson Intelligence Test (SIT) for Children and Adults, (Slosson 1963); the Jastak Wide Range Achievement Test (Jastak & Jastak, 1965); the Templin-Darley Screening Test of Articulation (Templin & Darley, 1960); the Harris revision and extension of the Goodenough Draw-A-Man Test (Harris, 1963); the Koppitz Bender

Gestalt Test for Young Children (Koppitz, 1964); and the Piers-Harris Self-Concept Scale, "The Way I Feel About Myself" (Piers, 1964). This test battery was administered in two parts at separate sittings by two different examiners. In this way it was possible to reduce test score variability due to fatigue of the children, while at the same time counter balance any effect that might exist in over-all competence among the examiners, although all examiners met two criteria of competence: first, each had had experience testing young children; and second, each had had some experience in working with the type of test they were administering to the project children. These test data served two functions. First, they served as a pre-intervention assessment of performance level of the project children and could be compared with the post-intervention assessment of performance level to determine the efficacy of the project. Second, these data served as diagostic information for the teachers enabling them to be more aware of the fine-grain differences in the patterns of strengths and weaknesses displayed by their project children, which in turn has led to more individualized remediation.

The third aspect of the evaluation component consisted of the administration of certain tests to determine the effectiveness of specific components of the instructional program. Tests used for this purpose were administered only to the 60 children in the six intervention classrooms. These tests included: the Frostig Development Test of Visual Perception (Frostig, 1964); the Belgau Test of Gross Motor Development (Belgau, 1967); and a Rating Scale of Disruptive Behaviors in the Classroom (developed by Project personnel and described in an earlier section).

The fourth aspect of the evaluation component of the project involved asking teachers to fill out a daily lesson plan outlining all the activities that actually went on during the day. This information may make it possible to relate changes in children's test performance to specific classroom activities.

Finally, the fifth evaluation aspect involved the administration of a questionnaire to each of the project families that provided information about the general characteristics of the home environment of the project children. This activity is described in a later section.

Followup

The Metropolitan Achievement Test and the various measures of the components of SQ will be administered at the start of the intervention program and again at the end of the program (spring of 1970). These scores will, of course, be one method of indicating to what extent the program was a success. However, there are other indices that are needed. For instance, it is not enough to know that the various intervention groups score higher on our tests than do the non-intervention groups. We also want to know that the children in these intervention groups continue to be more successful in their classroom placements in the years to come. Therefore, it is deemed essential that a brief followup study be carried out in the spring of 1971. This would consist of the administration of our basic measurement instruments to the original sample of 120 learning problem children. In this way we would at least have information as to their success for one year following their exposure to our intervention program.

Project Timetable

1.	Selection of participating schools and identification of subject population	5/69-6/69
2.	Hiring of project staff: intervention program specification; parent permissions obtained	summer/69
3.	Initial diagnostic testing; beginning of intervention program	fall/69
4.	Intervention program	winter/70
5.	Finishing up intervention program; assessment of children's progress; work with school personnel on placement of project children for next year	spring/70
6.	Followup study of children's progress	spring/71

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PANEL: INTERFACE: RESEARCH FINDINGS WITH PROGRAMS FOR PRESCHOOL CHILDREN AND PARENTS

(Translating Research into Practice)

Edited Recorded Transcription

Findings from new studies of preschool, paraprofessional, and infant programs are translated by an administrator, psychologist, social worker, teacher, parent, and researcher into action programs.

Chairman

Merle B. Karnes, Professor, Department of Special Education Institute for Research on Exceptional Children, University of Illinois, Champaign

Panel

James A. Teska, Assistant Professor, Department of Special Education, Institute for Research on Exceptional Children, University of Illinois, Champaign

R. Reid Zehrbach, Associate Professor, Department of Special Education, Institute for Research on Exceptional Children, University of Illinois, Champaign

Frank Myles
Herman Green
Edward Katz
Zemula Wood
Janice Edwards
Diane Smardzirch

Trainees, Leadership Training Program for Administrators of Preschool Programs for the Disadvantaged, University of Illinois, Champaign

Karnes: I'd like to present some background information on research we have been conducting for five years with preschool disadvantaged children at the University of Illinois Institute for Research on Exceptional Children, supported by funds from the Office of Education and the Office of Economic Opportunity. This money has been provided for both research and demonstration. Today, through a role-playing approach, researchers from the University and a fictitious group of local school personnel are meeting together for the purpose of exploring ways of translating theories into practice.

Research findings we are presenting here today represent real data we have obtained in our investigations at the University of Illinois. It is our intent to convey to you some of the problems in bridging the gap between new knowledge and implementation at the grass roots level. As you well know there is some 20 to 40 years gap between research findings and practice, a lag which must be reduced. . . .

During our presentation, we will emphasize the role university research can play in assisting practitioners in translating research into practice. We recognize that highly technical reports are not usually too helpful to those persons who are operating programs. The researcher should not feel that his job is finished when he writes his final report and submits it to the funding agency, and then places the bound volume on his bookshelf, likely just to gather dust. In other words, we feel that researchers have more of an obligation to disseiminate their information. Researchers in the past, have not always been concerned, as concerned as they should be, about getting new knowledge to the professional personnel who are actually working with the children, and who are in the strategic position to incorporate new knowledge into ongoing programs.

Another concept we plan to stress is the importance of staff participation in making decisions regarding change. In this initial exploratory meeting of researchers and public school staff, we have included staff members representing various roles in a public school. We have also included a parent. We might add that we recognize we have not included all personnel that very well might participate in a similar such meeting. Still another important idea we hope to communicate is the importance of the ongoing, supportive role that can be played by university researchers as practitioners are implementing the program or research findings. Activities such as jointly planned short-term workshops, demonstrations, university courses or seminars, individual conferences, assistance in evaluating programs, and reports written in readily understandable language, are some of the many ways researchers can be helpful to practitioners who may not be highly trained in research methodology, but represent the key personnel to utilizing research findings. With this background we are now ready to present in a role-playing setting, our findings and discussions of implementation and at the conclusion of our presentation, we will entertain questions from the audience.

Superintendent: We are happy to have three outstanding researchers from the university who have come to discuss the possibility of implementing their preschool program in our system. They are Doctors Karne, Zehrbach and Teska. I have already told them about our very high dropout rate, which is about 30 percent, and that 25 percent of the families in our district have incomes that fall below the OEO guidelines of poverty. The members of the interest group present today are Mr. Myles, principal, Miss Woods, teacher, Mr. Katz, guidance counselor, Diane Smardzirch, school social worker, and Janice Edwards, parent representative, and I'm Herman Green, the superintendent. We will begin by hearing from Dr. Karnes.

Karnes: Well, first, I would like to tell you and your staff, how very happy we are to be invited to discuss with you our findings. We consider this a real opportunity because, after all, research findings are of little use unless they are put into practice and you are the people who can make the best use of our research.

We have been working over a period of five years, trying to obtain some knowledge that will enable us to answer, I would say, four major questions, and I'm sure these questions are questions that will be very meaningful to you.

First, we were very interested in testing various approaches to the education of young disadvantaged children to determine what approach or approaches are the most effective and efficient. We have developed two highly structured programs at the University of Illinois and compared them to some of the programs that are better known. Now we all recognize that when we hear about a program in New York and California, the population might be quite different and it's hard to compare one program in one part of the country with one in another. So we've deliberately set up five different approaches with comparable children, and we conducted these over several years. We're following them up to see which ones seem to work out the best. Now we know, as you do, that a program is better than no program at all, and so we didn't pursue this question, because I think we all recognize that there is some value in early intervention. Another question that we were deeply concerned about is, at what age should one start intervention. In some states like Connecticut, they have laws to provide programs for handicapped children at the age of 2. We've been working with infants, with 2, 3, 4 and 5 year olds to see if we could come up with some hard data that would guide us in the future.

How long should intervention take place? In other words, is it enough to have one year of intervention, and will that be sufficient to help the children compensate, to alleviate any problems they might have so that this will carry them through the rest of their school career?

Still another problem is the shortage of personnel and recognizing that we will not have sufficient personnel trained in early childhood education to man all the classes for a long time. We wanted to test out how a special program that we developed could be implemented if we used parents and paraprofessionals.

Principal: During the time we talk about the implementation of new programs, we must keep our operating budget in mind. We can't invest in any unreliable programs. We've heard that the Westinghouse report showed that Head Start hasn't helped the children as much as had been hoped. On the other hand we heard that some preschool programs did do pretty well. Yours is one of them. Let's hear about your research. We would also appreciate a comparative analysis of the programs you've studied.

Zehrbach: Before we start, let me talk about the Westinghouse report. As you know, there are all types of research and about the best thing that we can say about research is that we kind of build on what went before. I think that one of the most important weaknesses of the Westinghouse report is that the researchers were forced to try to answer the wrong questions. They were essentially asked to find out if the "average" Head Start program made any difference. Now anyone who stops to realize that the whole Head Start program was in a rush when it was started and it was done with little thought and planning should realize then also that, "on the average," the program could hope to achieve little. Now the question that they should have considered is, can any programs be identified that were able to help disadvantaged children. Even from the limited data that they provide, we can say yes -- some programs did seem to make a difference. For example, some programs worked extremely well with the inner city blacks. And if, as you see, the average Head Start program produced children that functioned on an average level when they got out, there's got to be some programs that are above average -- above the mean. We then have to consider, carefully, which programs are doing the best job and try to identify what are the characteristics of these programs. For example, we need to know which programs work best with which type of disadvantaged child, the black, the Indian, the Mexican-American, Appalachian white, and the other kinds of subpopulation. And that's the question that should have been addressed by the Westinghouse report, not whether Head Start programs, on the average, help. So maybe with that little bit of background, we can consider how our approach might fit in and provide you with some, what we think, more important information.

Karnes: That's right, and of course I think the eight weeks was just too much to hope for, to think that eight weeks of intervention could make such a difference that the child could sustain these gains through the entire public school.

I am happy to give you some information about the five approaches. I believe we were the first in the country really to set up comparable groups of children and test the effectiveness of these programs. Now, I think that this chart will help us discuss, point out, maybe some of the differences along a continuum. I think there are two major ways these programs differ. One is in the degree of structure, and the other is the emphasis on oral language. The

Bereiter-Engleman Program represents a very highly structured program, and so does the Montessori, but the Montessori focuses mainly on the structure of the material. They do place emphasis on language, but it's more inner language, while the Bereiter-Engleman is directly verbal. The Karnes Ameliorative is sort of in the middle. It is highly structured but not as structured as the Bereiter-Engleman. It takes some of the elements of a Traditional Program and also has aspects that we could designate as highly structured. Now, for more information about the various programs -- the Traditional is the approach that has been used throughout the years, mostly for children who were from the middle class, with a strong emphasis on socialization. It is the least structured. The Community-Integrated Program was also a Traditional Program. Two or three disadvantaged children were integrated into middle class nursery schools. Now just briefly, we will discuss some of the major characteristics of the Bereiter-Engleman. The goals were to teach minimal essentials of language competencies needed in the schools -- direct verbal instruction with emphasis on content. The techniques used were intensive oral drill, or oral pattern drill. They minimized the use of sensory motor materials and visual manipulative materials. The Montessori Program was developed in Italy with slum children, and there are many who think that this is a very appropriate approach for the disadvantaged. The goals focus on independent functioning; cognitive development takes place through manipulation of materials. There's less intereaction with adults as children work independently on visual and manipulative tasks. It's a prepared environment.

Now in the Karnes Ameliorative Program we use a game format. We place strong emphasis on language, modeling elaboration to increase the verbal language, . . . to enhance personal and social development as preparation for school. The materials are manipulative, are multisensory in nature, and they are particularly chosen to elicit verbal response. Now in both the Bereiter-Engleman and the Karnes Ameliorative Program, there are three 20-minute structured periods a day. In the Traditional, as I mentioned before, the emphasis is on personal, social, motor and general language development. The techniques capitalize on informal and incidental learning. The materials have centers of interest -- dolls, housekeeping, vehicles, block centers, and so forth. And in the Community-Integrated, there is the same general approach. The difference is that the children are predominantly middle-class. The rationale was that if the disadvantaged children were integrated with middle-class children, they would have not only a teacher-model for language, but peer models also. ...

Teska: The class units we have been talking about consisted of 15 children in all the programs. Now some of the educational programs have two class units assigned to them and others had one. The project comparing approaches to preschool education was conducted with four year old children, that is children who would be eligible for entrance into kindergarten in the following year. Half of the children in each group were boys, and the rest girls. Two-thirds of the children were black, one-third white, which is similar to the proportion of disadvantaged blacks and whites in the community we've been working in. In regard to socioeconomic status, all families of children in the research project met the Head Start guidelines for eligibility. Groups were stratified on the basis of Stanford-Binet IQ. One-third of the children in each group scored between 70 and 89, one-third of the children in each group scored between 90 and 99, and one-third of the children in each group scored between 100 and 120. The initial mean Stanford-Binet IQ of each class unit was then about 95. Now this is somewhat higher than the mean for disadvantaged four year old children in the community which is about 85 to 87. Children with obvious physical defects were excluded from the program. And finally, all classes maintained pupil-teacher ratios of about one to five, that is about one teacher for each five children. After class units were established in the research project, they were then randomly assigned to the various preschool programs we have been talking about. One a chart we put the Stanford-Binet IQ on one dimension, and the other dimension is chronological age at the time of three different test periods: Battery I, a pretest for children who entered the program, Battery II, a test given at the end of the preschool year, and Battery III, the test given at the end of the kindergarten year. Treatment differences are designated by the initials DV for Direct Verbal or Bereiter-Engleman, the Ameliorative is Dr. Karnes' program, Montessori is M, Traditional - T, and Community-Integrated, CI.

The Stanford-Binet IQ gains made by the five groups during the preschool year illustrate the importance of having a highly structured program with emphasis on language development. The first year of the two highly structured programs, the Ameliorative and Direct Verbal gains were 14 and 13 points respectively, while the gains of the other three programs were from 5 to 8 points. The gains of the two highly structured programs were significantly greater.

The children of the Direct Verbal Program continued their special preschool for a second year and made an additional IQ gain of about 6 points. The children in the other four programs attended public school kindergarten. The children in the Ameliorative Program did have a one hour supportive program besides attending public school kindergarten; these four groups made small gains or losses in the kindergarten year. The importance of continuing to provide special services for disadvantaged children on into the public school setting is supportively illustrated.

If we look at some followup data on three of the groups at the end of the first grade, ... a fourth battery added onto the charts (which was testing done at the end of first grade, and when all children had left special programs and were attending public school only), you see continuing losses for the groups that made the larger gains in their preschool year. The differences among the three groups are no longer statistically significant as at the time of Battery IV. The three groups have, however, maintained gains of 6, 8 and 13 IQ points, so it isn't that they have fallen back to their initial levels, it is that their differences are no longer statistically different. It does seem clear from this evidence that one year of special programming, no matter how effective it was initially, is not sufficient to sustain those first year gains throughout the child's school career.

If we take a careful look at language development, we can see even more clearly the need for emphasis on language development in preschool programs. Disadvantaged children initially, that is before preschool intervention, have the greatest difficulty with three of the Illinois Test of Psycholinguistic Abilities subtests, as they are shown there -- vocal encoding, auditory vocal automatic tests and auditory vocal association tests. All three of these tests require a verbal expressive response. The child has to express his thoughts and ideas in words. Now it is not simply from evidence from the ITPA that we would say things about the weakness of disadvantaged children in the verbal expressive area. There is a lot of other evidence to show that this is a great area of weakness for disadvantaged children because they have difficulty in expressing their thoughts and ideas in words. The scores of the five programs are represented on that chart by initials, the Ameliorative Program is represented in yellow. To look at the bars on the left hand side of the chart, they represent months of language age at the time of test I below chronological age, and so, the groups of children were scoring from about 6 to 16 months below their chronological age, on those three subtests of the ITPA. Now on the right hand side is the data taken for test II, that is the data taken at the end of the preschool program. It's in this area of verbal expressive abilities that the Ameliorative Program shows its greatest strength. At the end of the preschool year, children in the Ameliorative Program made very large gains and had essentially non-deficit performances on those three subtests. Children in the Direct Verbal Program also made very good gains on two of the three subtests; in one of the three, gains are not so large, but relatively good gains -- not quite as large for the children in the Traditional Program. That is the top bar. Children in Community-Integrated and Montessori Programs did relatively poorly, and in fact, made in some of the areas, rather substantial losses in this critical area of development during their year in preschool program. Whatever the gains made in the preschool year, the most important test of the effectiveness of the preschool programming must be in terms of the performance of the children in the public schools. Results obtained on the California Achievement Test at the end of the first grade -- now this is again the children who have left the preschool program and are solely in public schools -- this data is available for three of the groups. This again supports the effectiveness of the two highly structured programs. We look at the column labeled "Reading Grade Level Mean" which is the far to the right column showing the scores of the children on the reading portion of the California. The middle column represents the grade expectancy level for the three groups which is about 1.7. You see that the Direct Verbal and Ameliorative groups were reading nearly half a year above grade level. Traditional group mean was slightly below grade level, and the difference between those two groups and Traditional was a significant difference. A look at the distribution of scores for the three groups reveals that nearly half of the children in the Traditional group were scoring substantially below grade level, that's the area blocked in yellow. As a matter of fact, the score of 1.4 or less -- on the California Reading section, if you mark randomly, you'll get a score of 1.4 -- so it's a relatively poor performance. You see almost half the children in the Traditional group at that level, and less than 10 percent of the children in the other two groups. This is again in reading. The same kind of relationships occurred on the language section of the California. Traditional groups scoring slightly below grade expectancy. The two highly structured programs scoring significantly higher than any of those figures. The two highly structured programs are significantly higher than the traditional on language. On the arithmetic section of the California Achievement Tests, again we have a significant difference in favor of the two highly structured programs above the Traditional program. In this instance, the highly structured groups were scoring at about grade level and the traditional groups were scoring lower.

Superintendent: Now I can see why you favor a high degree of structure ...

Teacher: I've been teaching in the middle-class schools now for ten years and I want my children to be socialized. I don't know much about structure, but I do have a few disadvantaged and I don't feel successful. Frankly, I just don't know what to do with these children. I'm not sure how to handle them and I keep wondering if I am doing the right things. And, academically these children just don't measure up as well as the others.

Karnes: Well, I certainly understand your concern. You say that you have been teaching in middle-class schools and this is really a new experience for you, isn't it? You mentioned that you are concerned about their social adjustment and I would say that we are very much concerned about affective behavior of these children and promoting the best possible social adjustment. And it's true in the past these children have customarily failed, repeated grades, more or less crippled through school. You mentioned you don't understand exactly what we mean by structure and I think that is a very good question. Sometimes we just throw words around, and we're glad to have the opportunity to discuss them a little bit.

You know historically nursery schools have provided pretty much for a select group -- for middle class children. And the focus, the emphasis has been on social adjustment because these children have usually come from homes where they have been intellectually stimulated. Their language development is sometimes accelerated. By structure we mean to really map out specifically what we are going to teach disadvantaged children and how we are going to teach them. We don't leave very much to chance because we know that they have difficulty processing information. They lag behind. Some of our children don't even score on some tests like the Illinois Test of Psycholinguistics. We know that they have gaps in information, so we set up behavioral objectives for our children, and we then deliberately teach them certain things, and then we evaluate what they are doing on a day by day basis. We spend about one and one-half to two hours a day in planning what you might call concurrent inservice training of personnel where we concentrade on planning for individual children. In programs which have been successful, there has been a big emphasis on careful programming, sequencing and inservice training of staff. ...

Principal: That's so very true. Since America has embarked on this grand experiment to educate all boys and girls, this has created many problems. As our school population tends to grow, the growth comes from the lower class children for the most part. In other words, we're kind of scraping the bottom of the barrel. Integration has brought its problems too, and as we face more and more integration, all teachers will have to know how to work with the disadvantaged.

Guidance Counselor: This is one of the problems we run into because you haven't said anything in your program about the socialization process and the biggest problem that we seem to have in the schools is adjustment. How do you provide in your structured program for any development of social skills?

Zehrbach: The Ameliorative Preschool Program is based on the rationale that personal and social adjustment are enhanced when the instructional situation utilizes a low pupil-teacher ratio to help insure the establishment of the probability of a high positive reinforcement rate in the class setting. Further, the tasks assigned to each child matches his developmental level and the probability of success is high, which leads to the establishment of a condition within which positive reinforcement can occur. As you know, once a child receives positive reinforcement he can begin to internalize his behavior with the resultant enhancement of his self-concept.

Guidance Counselor: I heard what you said, Dr. Zehrbach, but I am not sure what you mean. Could you be just a little bit more specific?

Zehrbach: What we are really trying to say is that the child can only learn to feel good about himself when he is able to do something well. So, everyday we try to give each child lessons that he can do well. For example, we may ask a child who knows about squares, and whom we know knows about squares, to learn to match triangles. Now each time that he matches a triangle we then try to see that he is told very specifically, "you really can find the red triangles or you can really find the triangles fast or I like the way you listen to directions." In this way, you see he learns both the languge and he learns that he can do something well.

Another part of the plan is to teach in small groups because when you teach children in groups of three or four, you can watch each and every child and can tell each how careful, how fast, or how good he is, right when he finishes the job. Now this is quite different from being in the classroom of 30, where there is one teacher who's trying to run around and who may never, in several weeks, be able to tell the child how good his work is, or what he is doing right.

We are trying to build-in success for the child and have the teacher verbalize how carefully he works; in this way you improve each child's personal adjustment.

Mother: I don't know why I was invited here. So far I don't know what you're talking about. I don't know anymore now than I did before I came. But I do know a few things you said that I didn't like: you called the children disadvantaged, and you said we're at the bottom of the barrel. If I am at the bottom of the barrel, I'm there because you all put me there. You said that they didn't have any language. Now look, when Johnny comes home, I can't even shut the boy up. You say he doesn't have any language. Mrs. Woods, I have told you time and time again, that if you were having any trouble with Johnny in school, you were to call me. Now you sit up here and tell everybody else that you are having trouble with him, and as far as what -- you know, what you been telling me what you wanted -- as far as that, have you asked me what I wanted? I know what is best for my child.

Superintendent: Mrs. Edwards, we know what is best for your child.

Principal: Now Mrs. Edwards, I am surprised at you. You have been coming to my school almost daily and you know better than anybody else what we are attempting to do. We had the feeling that you were kind of a member of the school family. Who in the world have you been talking to?

Mother: I'm sure you wouldn't have invited me if you had known. We have been meeting in our neighborhood with concerned parents, and we are concerned. We want to know what our children are doing, we want you to ask us what we can do to help them.

Social Worker: Our parents aren't aware of what the teachers are doing in the classroom. They aren't as involved as they should be. I also feel that the parents should be cooperative and more receptive when I visit them in their homes. I've heard that other social workers in other school districts are having the same kind of problem.

Mother: Now look, you come into my home, and sit down with your white gloves on, and you don't want to touch my cups; you don't want to sit on my furniture. And that's what I want you to do? I don't need you in my home. My child is fine.

Zehrbach: Let me just jump in here for just a second because I think it has become obvious that what we have here is a discrepancy between you the parent and you the social worker. One of the findings of research is that the parents of so-called disadvantaged are quite concerned about how their children do in school. The problem that we find though, is that they don't know how to help them learn to get along in school. The problem that we face is then, not in getting the parents involved with their child, but in helping the parents learn how to help their child. We need to help these parents learn how to play a productive role in and around the school. They need to have something positive to do instead of just being allowed to come in and observe, but don't touch, as they do in the school setting now.

Social Worker: Now that we are on the subject of parents, I'd like to say that I have heard many marvelous things about your parent program, Dr. Karnes. You seem to have worked out the problem of transportation and baby sitting. Could you tell us more about these aspects and others?

Karnes: Well yes, we are very enthusiastic about the work we have been doing with parents, and I might add that we've always said that parents are important and we should involve the parents, but we've more or less given lip service to it. And I am just as guilty as the next person. I have spent about just as much time in public schools, on a staff of a public school, as I have had in the universities, so I know some of the problems. And we used to use the old PTA approach, and that approach just obviously doesn't work. We'd invited a speaker in that would talk to the parents and they were supposed to sit there and listen and absorb like a sponge. ... I think that Mrs. Edwards has made it very clear to us that that isn't the role that she wants to play. And so we have tried an approach that is more in keeping with what Mrs. Edwards had in mind. The parents do know what they want for their children, but they would like to be helped to develop some competencies. Parents are teachers of children for several years, usually, before we get them, and so regardless of how we feel about it, they are going to teach their children. And if they want to develop more competencies, we can capitalize on their interest. We have, as Dr. Zehrbach said, found parents very interested. We have several programs. We've trained parents of infants. We have a training programs -- although I wouldn't say we trained them. That's not really correct. Through working together they trained themselves. Really. And I would just like to tell you a little about this program. We don't work with the infants at all -- the parents do it. They meet with us two hours every week and one of these hours they spend on what we call mother-centered activities. Problems that they think are important. They set up the agenda and we're there just as consultants to help them. They have been able to come to grips with some very difficult problems. Then, the second hour is spent on problems of the educational programs for the infants. Maybe we have to chuckle about ... infants' education and developing sequential programs for infants, but we think it is very important to start early with these children. ... This program has been very successful. The parents attendance was just fantastic. You know that some people say, well, disadvantaged parents will not attend, and well, we did not find that to be the case. After one year, they begged us to have the program a second year. ... We didn't have quite enough money in our research budget, but we were able to manage. And, at the end of the second year, we collected research data and the children had made 16 IQ points gain over a two-year period. And this certainly wasn't true of the control group that we had whose parents didn't participate in a training program. We happened to have tested some of the older siblings several years previously, and when the infants were at the same age as the older brother or sister, we compared this data. There were 28 IQ points difference. That was quite remarkable, isn't it? So we feel that parents can play an important role in facilitating and promoting the growth of their children.

Now you did mention that you would like to know more about the transportation and baby sitting arrangements. ... We provide mothers with transportation and also with reimbursement for baby sitting. These things seem to be the two major problems.

Principal: That sounds as if that would cost us a lot of money. Where are we going to get the money, Mr. Green?

Superintendent: Well, any school system could provide the transportation and facilities, but beyond that, I don't know.

Social Worker: Well, Mr. Green, we do have a large group of Vista workers in the area. Perhaps we can use these people in our program.

Mother: Now you are speaking my language. I like those ideas. Now, then, I can do something to let you know how I want to help. These are the things I want to do. I bet I can even get up parents in the neighborhood that would really want to work with something like this.

Superintendent: School should be open at night. I think this is worth a try. Some parents could come at night, and some could come during the day.

Social Worker: I think that this is a good idea. I have been wanting to do this sort of thing for many years now. But I can't work both day and night and be expected in both programs as I would like to be. Parents could come at night, but I don't see how I could.

Superintendent: Well, Miss Zmardzirch, I am in sympathy with your problem but possibly we could arrange for you to involve yourself with the parent program at night and have some of the work eased for you during the day by taking some time off from your other activities during the day.

Social Worker: What will the teachers say when I am not spending my time with the children?

Principal: We will just have to interpret the program to the teachers.

Teacher: Well, helping the mothers will certainly help me and I would be all for that. We definitely need more involvement with the parents. And it would do a lot more good than just seeing the children in school.

Guidance Counselor: Well, Diane, let's get together and maybe we can work out a schedule so that I could take some of your kids at school and free you for some time with the parents in the evening.

Social Worker: I'd appreciate that. I'd like to be able to work with the parents in various ways. I'd also like to study these new ways of working with the parents.

Superintendent: I think our teachers should be more involved with the parents also. You said something about the age of intervention. Would you elaborate on that please, Dr. Karnes?

Karnes: Yes I would. We really do not have the hard data to specifically answer this question, however, we do feel, in the work we have done, that the earlier the intervention the better. And I mentioned our Mother Training Program and how the mothers were able to promote intellectual and language development of their children and I just have a feeling you can't start too soon. We tested the Ameliorative Program with four year olds and we then dropped down to three year olds, and I would say that the three year olds made greater gains over a year but not statistically so. We think maybe that there are some benefits from starting at three over starting at four, but there again, we just simply do not have the hard data to substantiate this. But I was thinking, you mentioned earlier in our conversation that five years ago you initiated kindergartens. And I think this is a problem that you will just have to deal with locally, but it is my opinion, that maybe would want to initiate a program with four year olds and then move down. Perhaps we're not quite ready to initiate programs for infants in the public schools in general until we do a little more investigation.

Principal: What bothers me about all this is you seemed to be asking for a ratio of one to five. One teacher to every five children, and with a beginner's Bachelor's degree, a starting salary of over $7,000 a year. We couldn't afford that, could we Mr. Green?

Superintendent: Well, so far the problem sounds very good. But we are thinking about practical implementation and not research. And your teacher-pupil ratio is not practical. I'm sure you are aware of our budget problems.

Karnes: I certainly understand that you have to work in a framework of your financial income for the school and while you were talking, I just calculated what it could cost if you had three beginning teachers at $7,200.00 each. It would cost $21,600 for 15 children, and this is exhorbitant. I see that you wouldn't be able to do it now or probably for years to come.

Also, there is a very real problem in that we simply don't have so many trained professionals that we could have three in each classroom of 15 children, even if we had unlimited sources of funds. We did conduct some research that focused in on this problem: "Could we implement the Ameliorative

Program using paraprofessionals?" Now we paid the paraprofessionals -- some of them, I recall one, was an eighth grade graduate. They were from target areas -- and we paid them the going rate of about $2.00 an hour. We had concurrent inservice training with the paraprofessionals and we paid them for this. They were supervised by a very highly qualified professional person and do you know, that at the end of the year when we collected data and compared the results with a comparable group of children taught by our professionals, that essentially the children taught by the paraprofessionals made about comparable gains. Dr. Teska, would you like to give us more details?

Teska: Just let me stress again before I start, that in the paraprofessional programs, the supervisory teacher was required to be present but did not implement the program. She was present to observe, to train the paraprofessionals, and to give them help with the program, but she did not do the teaching directly. There is a lot of data on this slide that can be very simply summarized. The gains of the children taught by the professional teachers, adult paraprofessional teachers and teen-age paraprofessional teachers did not differ significantly. They were, in fact, virtually identical. . . .

It might have been assumed that implementing a highly structured instructional program such as ours would make the training of paraprofessional staff even more difficult. This did not prove to be the case. The supervisor of the adult paraprofessionals felt that the choice of the Ameliorative Program may have been critical to the success. Structured programming proved to be a rather ideal vehicle for training paraprofessionals.

First, the paraprofessional teacher approached her teaching with confidence, since she knew precisely what she was to do. Second, she was able to evaluate immediately her effectiveness as a teacher, by observing the child's performance on defined tasks. She saw very clearly when the lesson was going wrong -- when it was not going well. And she could see the specific results of her efforts in the day to day development of the children. She could see their progress very clearly, which is probably much harder in less structured programs. And even if there is . . . for progress, it would be much harder for the paraprofessional teacher to see it. So all the observations made by the paraprofessionals were requirements of the structured curriculum. They also served to reward teaching efforts by emphasizing child growth.

Karnes: I would like to add that the paraprofessionals from the target areas relate very well to children, and we feel that they are an asset to a program. I believe that we are one of the few researchers who have really evaluated the use of paraprofessionals versus all professionals. There are many parents who are concerned about people who are not certified teachers teaching children, so I think this information is very useful to a local school system who might want to use paraprofessionals as teachers.

Principal: I wonder how many paraprofessionals can one professional supervise?

Zehrbach: That's another question we'd like to have answered, too. We just had some comments made again by the supervisor of the paraprofessionals, and she seemed to think that maybe an optimum number may be something like 12. But you have to remember that's not 12 teachers, one to a classroom spotted all over the building. What we are talking about here are clusters of three teachers to a room, three paraprofessionals to a room. This means that the supervisor is talking about four classrooms with three paraprofessionals per classroom. Now she made another stipulation. She said that it probably ought to be lined up so there could be two classes of children going in the morning and two classes in the afternoon. I think you can now realize how one professional supervisor could certainly keep her eye on two classes in the morning, and two classes in the afternoon and provide the inservice training for the paraprofessionals as she went along. This seems like a reasonable guess at the moment. But let's don't stop there, let's talk about some other possibilities. Some school system may want to say, why not one for 12. What we'd like to do is set up a program where we have one professional and five paraprofessionals. Then there'd be some floating back and forth, where some paraprofessionals showed some specific skills, they'd work with difficult children or certain kinds of tasks or something like that.

Another might say what about using one professional and two paraprofessionals, or one professional, a paraprofessional and a volunteer. You see, when you start thinking this way, there are lots of possibilities you can think of and pick the one that best fits your system and your needs. I think the real question here is, how can we extend the expertise and the abilities of our professionals through the use of various combinations of paraprofessionals.

Superintendent: I hate to keep saying this, but I must always keep our budget in mind. I'd like to know how much this type program would cost.

Karnes: Well, I don't think you can approach the staffing program purely on the basis of whether it will save money or not. I doubt if it would cost you any more than staffing it with one professional. I doubt that. But there are many advantages because the interaction between the disadvantaged child and adult is very important in stimulating his growth. And I do think that you could have a quality program if you had highly trained personnel supervising paraprofessionals. And then there's the side effect of career development and ultimately meeting some of these staffing problems through encouraging very able persons from the target area to continue in school. Perhaps, in many communities junior colleges are training paraprofessionals. A percentage of these, given encouragement, will go on to college. It just occurred to me, as we were talking here, should you decide to adopt the Ameliorative approach, we have a training program for graduate students at the university and we are looking for meaningful practicum experiences for them. And so we could work out some kind of arrangement that would be mutually beneficial to both of us whereby our graduate students would serve as teachers in your experimental program -- a program where you are really field testing our approach.

Zehrbach: As we were sitting here, I was thinking of something else. Most people think that research is something that's done way off yonder in the University and maybe some year will be available in a textbook. But, really, if you are to consider this program, I would hope that you would consider doing some evaluation on your own. Now, I'm not using that dread word research -- I said evaluation. Because after all, that's we're trying to suggest that you do. Find out how good you are. Does the program work for you? Now I make this recommendation for two reasons: one, when you get through you're going to have some idea as to whether or not this program is really going to work for you, and the second is spinoff. Now I have been involved with these research projects with school systems for about 10 years, and it always seem that when we get through with the project, we say, well doggone it, if we'd only know this when we started, we could do this, and this, and this -- all of which would be better than what we started with. And that's what I call spinoff. You get so many more, and so you find that research not only tells you how successful the program was, but makes you aware of other kinds of things that lead you into better activities and better programs.

Mother: I didn't want to interrupt you while you were talking, but I didn't quite understand exactly the word paraprofessionals, who I think you talked a lot about. Who are they?

Superintendent: Paraprofessionals refer to you, and other kinds like you, who could serve as teachers, but who do not necessarily hold a college degree.

Mother: Could I be a volunteer?

Superintendent: You know a lot of people in the community. I bet you could do a lot of recruiting in helping us to get over a program.

Guidance Counselor: I don't want to appear inflexible, but I'm not sure that we can get away with paraprofessionals as teachers.

Zehrbach: Well, let me interrupt you again. There are quite a few states around now that have in their constitution or in their by-laws at the state level, provisions for experimental programs. If you really decided that you wanted to try something new, you can frequently go to your state superintendent of schools and say, look, we've got an idea we want to try out. Would you allow us to experiment, and give us the necessary leeway to try an experiment in our school system for the next two or three years. In this way you can get around some of the present laws, and do kinds of things you really think you need to do.

Mother: Now wait a minute! I don't want you using my children as guinea pigs. You can't set them up as experiments. I thought you were going to help.

Superintendent: Now let me assure you, ma'm, that we are not going to use your children as guinea pigs. All we're trying to say is that we are going to take the best ideas and put them into practice in our own school system.

Mother: Now I understand. It would seem like everytime you say something it would be better to explain so that I can understand.

Teacher: You know all of this sounds very good. Mr. Green, I like the idea of the Ameliorative approach and getting help in the classroom. How can we learn more about it?

Principal: We need to know as much as we possibly can about this approach, Dr. Karnes. Do you have any literature you can leave with us so we can study your program in depth?

Karnes: Well, we sort of anticipated that you were going to ask for literature, and so we just rented a van and we have our research reports parked in your parking lot. We have curriculum guides and lesson plans and you're most welcome to them.

Superintendent: Can we send a group of people from our school system up to study your program. You know we have to submit a budget pretty soon, and we have to have some concrete ideas when we get ready to submit our budget.

Karnes: Well, we have many visitors who come to observe in our demonstration classes, and we'd be particularly interested in having your staff come. We would free up some of our personnel to spend considerable time, and there are many diffierent ways in which we could plan joint activities -- short-term workshops or a seminar, for credit or noncredit. We could demonstrate in your setting, or as you mentioned, we could set up a demonstration specifically for your group. We all recognize how important inservice training is, and so we could just participate in some activities of an ongoing nature, should you adopt this program.

Superintendent: Well, based on what you said, I know we can count on help if we decide to implement this program. But we must study it very carefully, before we come to any definite conclusions.

Karnes: We have certainly enjoyed an opportunity to visit with you, and we do hope something will materialize. I know this is an exploratory meeting and you will want to read our literature and send your group to observe in our demonstration classes, and I certainly think you're most wise in involving a number of your staff in this planning period.

Question and Answer Session

Question: Could you give me some idea of what takes place, Dr. Karnes, during the two one-half hour periods?

Karnes: We have three structured 20-minute periods where one is a concentration on language, another a concentration on reading readiness type activities, another math, and another social studies or science, and these are interspersed during a two and one-half hour block of time. So we have a block of time for what we called directed free play, for music, for art, for juice time, and for breakfast and lunch which we provide. During the day, there is some large group activity; the small group activities are highly structured. So you can see there are aspects of the program that are fairly similar to what you refer to as Traditional nursery school, although we limit their selection of materials or toys during the directed play.

Question: How many would be in the small group?

Karnes: Five. Now we have a large room and cubicles, three cubicles for the children. The children move from cubicle to cubicle. They stay with the same teacher during the structured period. Now that is opposite to the Bereiter-Engleman plan. They have specialists in math and language and so forth in their three periods. Our rationale is that we thought the teachers would become well acquainted with the five children, and we train them to be diagnosticians, too, as our approach is a diagnostic one. They know a lot about the child to begin with, but you know this changes constantly. The teacher has to be a diagnostician. We haven't really tested it out whether a full day program would be better than a two and one-half hour program. We can't answer that. We do have our program being implemented in a day care center in a nearby community now, and we will be collecting data. But I would say that it would be advantageous for the culturally disadvantaged children to have a block of time for sleeping. I remember when I worked with Dr. Kirk in an earlier study, we kept the children for a full day, and they would sleep maybe for an hour and a half to two hours in the afternoon. We were really testing the effectiveness of the structure aspects of the program more than anything else. But we are encouraging people to intiate educational components in day care centers.

Question: Would you expect to put in some kind of a mother training program that would be going along with this new experimental program, and would it be the program that the social worker was talking about? Is that the one that would provide these services to mothers?

Karnes: Yes, that's the one she was talking about. We first worked out the parent program apart from a classroom situation. In other words, we worked with parents the spring of 1966. We had a group of parents that we worked with two hours a week, and then we had weekly home visits to followup and compare the progress of the children on tests of intellectual functioning and language versus a group whose mothers were not trained. We found, and we were quite surprised ourselves, because it was a pilot study. I remember I said you can't really expect any significant differences in 11 weeks because the purpose of the program is to work out the procedures and then we'll test over a longer period of time, but when we gathered the data, we found there was a significant difference in the two groups. And that in a period of 11 weeks, the IQ scores of one group of the experimental children accelerated 8 points. In the literature, some of the experimental programs covering a span of a year have not obtained any greater gains on children taught by professionals than 6 to 8 points. So we were very encouraged with the participation of the parents, and enthusiasm for the program and we did combine it with the classroom program. We think this goes hand in hand. Now we have graduate students in our leadership training program, so we are now setting up programs for them to get the experience. Last summer, some of the mothers that were in our training program were hired as the teachers. Some of them have gone into Head Start as head teachers after our training. So it's career development, and they are very effective in the classroom. We're excited. Now, also, in some of these programs, we've employed them to go out in the homes and help parents. The possibilities are just tremendous.

Now one thing we haven't done is involve fathers. We've got to do that because people are always asking us that. I out anticipated you. But we did do something that was very exciting. We've done it for two summers, and that is that we've employed 10 to 15 year old siblings and taught them to tutor their young brothers and sisters. This has worked out very well. One year we staffed one of our classes with high school students from the target area who were dropout prone. This is another possibility. We had them supervised by a very highly trained person who had the temperament to work with them. It's more difficult to work with teen-agers, they were 16 to 19. But the children, we just knew they were making good gains, and when we had the data collected at the end of the year and analyzed, sure enough they made comparable gains to children taught by professionals. There were some qualitative differences, but in general, this is one way of staffing. I think we have pretty good evidence that the structured program can be implemented better by paraprofessionals than the more unstructured where they have to be more insightful, and they have to take advantage of opportunities and so forth.

Question: Did you get any data on high school students?

Karnes: Well, people ask us that, too. We recognize that this would have been very valuable, but we had limitations in research funds. We are now following up on the children. I think we had 800 test slots. So it's just insurmountable what you can do. But we should do it, or somebody else should do it. In isolated cases, or in cases we happened to followup by chance, we had some indications that there might be some changes made in the high school students. But it would warrant a large research project I think.

Question: Would you comment on the use of IQ change as a measure of change, in view of the current controversy of IQ testing?

Karnes: Why don't we hear from the psychologist.

Zehrbach: I occasionally say that there would be a good research if some of us say the major point of my research project is not to use the Binet to evaluate the progress of the children. It's sort of a common practice. If one does it, every one expects it. Certainly I'm missing a lot of information with the Binet. We rely heavily on the Binet. It is one piece of information. It certainly should not be the thing on which you base the evaluation of your children. We have a very good program, it is very effective, you make very substantial changes in the children's work attitudes, and a whole variety of factors, and you wouldn't see much on the Binet IQ. Still, professionally we seem to be very much staying with using the IQ. People look at it very hard. It's really only a small portion of what you really need to look at. I think one of the reasons people continue to look at it -- it's very easy, and very handy. And as Dr. Smith pointed out this morning, we need a great many instruments. Because we lack them, we use the Binet. Sometimes it can give you very inappropriate information.

Karnes: But we also might be suspect if we didn't use it. They'd wonder why we didn't report it, because it's generally used.

Teska: I would say that's why our concern has really been more with how the children have done in school. I'm much more concerned about that than about what has happened to the IQ one way or another.

Zehrbach: Let me just talk about one other thing. We've said structure for so long here, I'm afraid some of you are getting the impression all we're going to do is pound the kid -- this is red, and this blue, and this is yellow. What's red, what's blue, what's yellow? No. What we try to do is to focus on getting the child to think. We get him to look at an array of materials that we think, will force him to think. In other words, to process information before he does something. So there's considerable emphasis in this program on getting the child to do, to think, to react. But still within a limited structure so that when he does react, he knows pretty quickly whether or not he's correct or whether he's doing things in the right way. So the structure, you see, comes from limiting the area in which he has to function, rather than saying there's only one right answer. No, that's not it.

Karnes: Well, I'd like to add to that and say that we use instructional models to guide the teacher, and we think this is very helpful. We start out using an instructional model that we derived from a model of the ITPA, the Illinois Test of Psycholinguistics. The reason that we use an instructional model is that it seems to keep the teachers focused in on the problems of the child and helps them to have a balanced program. Our teachers, if you walk in and you say why are you doing that, they will tell you immediately why they are doing it. This has always been a concern to me as an administrator of special education over the years, that sometimes I would say to a teacher, tell me why you're doing that, and they'd say, "Tell me why I'm doing it, well, I'm just doing it." "What's your purpose for doing it?" They'd look at me so blankly and ask if I were criticizing their teaching. Maybe that's a fault of the teacher training institutions. I don't know. They tend to model after another teacher, and they kind of blindly follow without knowing why they do things. So, we like to think, at any rate, that we're carefully planning and thinking why we're doing what we're doing. Now we also use a model derived from Guilford. We think that this is helpful to teachers. Teachers like it.

Question: Couldn't you mention a few of the major problems that you've encountered in the Ameliorative approach or the disappointments at this stage of development?

Karnes: Well, to tell you the truth about it, we've been pretty happy with it. We keep refining, you know, we keep refining. And I think, well, what we're doing now, next year we have to do better. But, one thing that we didn't do. We always had plans and tried to sequence material, but now we're using more behavioral objective and criterion tasks, and I think we're just a little more precise. As for disappointments, we're hard pressed to say, right now. We had so many. We were completing our report for the federal government and we're continuing to follow up so we haven't analyzed all our data, but I would say it looks pretty good. So we can't say we're too disappointed.

Teska: I want to say one general consideration is that we have not been entirely satisfied with our second year program, when we have had children for two years, which is partly why we've gone in to the use of the Guilford model.

Karnes: We haven't collected the data on the second year of the Guilford yet, but people observing the children are quite enthusiastic about what they can do. They just can't believe the children are disadvantaged. Maybe some of these people would like to react that worked with the children. Some of you've worked with Head Start and Head Start programs, what do you think about it? Be frank. If you don't think it's all it's cracked up to be, say it. We won't reduce your grade.

Speaker: Well, I'd like to say that I had some doubts about the overall program after I got into it. I didn't think that the things were possible. But after getting down and working with the kids, I enjoyed it. I really enjoyed working with the kids. And I think that we are getting a lot done with them.

Speaker: My main concern when I first entered the program was about the high degree of structure. And I had the feeling that possibly, effectiveness was left out. I questioned this. And I also had deep concern about the teacher who worked long hours with children that really kept you on your toes. At this stage of the game, I'm more convinced than ever before, that if a person works with preschool children, that they shouldn't do it any longer than 12 o'clock in the day. The reason being if you really work, if you really go in and hold a critique and plan what you're going to do for that 30-minute session before time, then you meet your kids. Then you'll go into the structured period for 20 minutes. If you really work at it, when you finish and go to the less structured period, you can get a little breather. At 12 o'clock, it's time to stop. And I feel that you get more out of the kids if you do it this way, because you bring them back after 12, the teacher's tired, the kids are tired. The teacher doesn't have the motivation, and she has a tendency to go through the motions. And I've even -- this is just a personal bias -- that I think, possibly, our elementary schools would be a lot stronger, especially first, second, and third grade, if they stopped it at twelve. In this way, teachers would have a chance to actually do what they're supposed to do. Challenge kids. Look for interest. And they can't do it when they're half shot.

Karnes: That's very good because you know the time they spend planning, of course now, he may have some biases because he takes a full course load plus he works half a day in practicum. Dr. Smith said today we have a program like universities should do. We have some former trainees in the audience like Mr. Morrow. They grumble about how hard we work them, then after they get out, he called one day to tell how great the program was. I'm glad you made me do all that.

Question: Dr. Karnes, I would like to ask you the same question that you asked your administrator, that you ask an administrator, and that's basically why are you conducting your research and using the same kinds of criteria that have been used in the past, the same basic objectives?

Karnes: You mean why are we using the same old instruments and the same pre and post design?

Speaker: Yes, what's the basic objectives of the research?

Karnes: Yes. You weren't in here when I reviewed the four major areas. I don't mind repeating them. We were tryint to get at the -- we compared five different approaches for educating children. One was the Montessori approach. Montessori developed the program in Italy with slum children, and people were saying maybe the Montessori Program should be utilized in the community. And we had a very authentic Montessori Program in our community and we got their cooperation. Then we had two experimental programs that were developed at the University. One was, as you probably know, Bereiter-Engleman, and that's the direct verbal pattern drill, and then one we called the Ameliorative Program that I developed with my associates, and that's based on a diagnostically based curriculum game format. We don't put undue pressure on the children. We like them to develop the attitude that learning is gratifying, learning is fun. School is a good place to be. And, we approach it from two points of view. We know what they need to know when they get into public school so they can cope. We help them process information, help them develop certain skills, especially in language. Information, fill in the experiential gaps, and so forth. The Head Start literally follows the Traditional approach. And we had a very good Traditional Program. Then we hypothesized that it might be advantageous for disadvantaged children to be placed in middle class nursery schools so they would have peer models, language models as well as adult language models. So we tested these out to see which one or ones were most effective. And we used the Illinois Test of Psycholinguistics, which is one, if not the best, language test. And we felt pretty secure in using that. And of course the Binet seemed to be one of the most reliable instruments. We used that. Now, that was one thing. Then, the length of intervention. We were concerned. I believe that Head Start, really we had too much hope. You know, all of us maybe, thought Head Start would really do wonders. All out of proportion to what eight weeks should do. So we wanted to know, should you have special intervention for two years, for one year, or for three years. What should it be? And now we think that you shouldn't lose sight of these children at all. They get it all the way, a critical period. You should give them help. But certainly, a shot in the arm for a year and say, here, you're on your own, isn't reasonable. Then another thing that we were seeking answers to is whether we could implement this program with paraprofessionals because we know that there was a shortage of trained personnel. Also, we had a pretty good hunch that the paraprofessionals from the target area had the knowhow. ... And we found this to be true. We were just seeking answers to these questions. Earlier Dr. Zehrbach said we came up with more questions than we answered. We weren't satisfied in the beginning with our pre/post design, but it's very difficult to devise instruments, you know, and we've been working on this and the best thing I think we've done now is day to day type evaluation and immediate feedback to the teacher using behavioral objectives and criterion tasks. Evaluation is imbedded in the instruction.

Teska: Dr. Karnes, I didn't hear, but maybe in answer to your question, the last part of your question, I think basicly, we're doing what we're doing to find a way to help young children compete successfully when they enter school. Children who are being, and I hate to use these words, diagnosed as being "underprivileged, disadvantaged, lacking in certain skill", they need something so that when they get to the first grade, the tests that they take, which are based as you know, on middle class standards, don't show them to be deficit in areas. You know, in order to be successful you've got to have a label when you get in school, that you can do the work. And if, when you start school, you already have the label that you can't do the work, you have a tough time. And so I think one objective of the program is to find a way to help children be successful.

Another speaker: I guess that's what our objective is based on. I think what we're doing in large part is perpetuating the same kind of research that recognizes the established criteria for success. And that is, middle class standards. As long as you do research, and you accept that as a frame of reference, you are not doing anything to change it. You say success is in the framework of middle class, therefore you use the Binet, use the ITPA. And I think it's time researchers took some initiative, and took the unsafe route, and took the route that might be challenged and say we're not going to use the Binet. True, it's valid with some people, but we're going to use a different set of criteria which we feel is more relevant to disadvantaged people. And until we get to that point, we're just playing a game.

Teska: I think this is true, and I agree with you. However, we just can't let the kids float around until something happens.

Speaker: I think there's one other thing to be said which is that if you want the government grant, you have to do what the government tells you, and the government says to you, you must have recognized instruments for evaluation.

Speaker: Well, what are we going to do? Let the government wag the tail of the dog? I think too often we have established special education programs and labels simply because government funding is there. Too often these labels work to the detriment of black kids. So long as we operate ... with our motivations of getting government funding, we are going to operate to the detriment of our black people, disadvantaged people.

Speaker: One prime consideration, I think, that we're all overlooking is basically, the design, the structure, the methodology, techniques, the kinds of the things that you have here. It seems that we have all of the ingredients. And basically I think for us to evaluate the program, Dr. Karnes, we're to ask are we helping children. Now I'm not concerned with the degree at this point. But are we pointing the way to help children, significantly. And at this point, as a model, and which you've explained you are refining, I don't think that you can expect something marvelous and wonderful to happen, but simply to find a sense of directionality. ...

Speaker: The emphasis is changing so, to more interesting subjects, that I forgot one of my questions. But basically, I'm concerned how specifically your method differs from the Montessori method other than a little more emphasis on verbalization. How else?

Karnes: The Montessori Program, as I mentioned earlier, the structure is in the materials. They have wonderful materials. They stress independence which is very important. But the interaction, it doesn't seem to be such that the children acquire the skills of the language that are necessary to progress academically. I was very concerned. We have a good working relationship and got wonderful cooperation from the Montessori Society, and our results were such that we really hated to share them with these people. So, I happened to be on a panel with Nancy Ramber, who is the leader, and I was talking and I said you know, I'm just horrified when I think of sharing this result with the Montessori Society and sooner or later, I have to do it. She said, think nothing of it. She said they have geared up for it. For the disadvantaged, it isn't appropriate because they don't focus in on oral language enough. And so when she said this, and she's an authority, I feel that the Montessori approach is being used with modifications. She said that's what should be done. But, without question, they have marvelous materials. And for middle class and upper class children, it seems to be most effective. I've never heard anyone that really had anything negative to say about the Montessori approach. But this was our finding, and we say again, that this should be tested out. This is what we're reporting on our research and maybe someone else should replicate it.

The last speaker (again): You haven't answered my question yet. I said specific differences.

Karnes: I thought I had.

Teska: The emphasis is on the verbalization on the part of the children which is not true of the Montessori Program. We work in the small group, which I think is less true of them. They work in the large group or more individual work, so there is a good deal of difference in them, the way in which they spend their time. The children have a lot more freedom to select what they are going to do than in our program. You could say, in a sense, our program is more teacher directed. But, the Montessori is also directed by the selection of the materials for the children, too. So I'm not sure how much difference there is there.

Zehrbach: Let me make a suggestion. If you can, visit a Montessori Program and watch them for a little while. Then come visit us. Because the proof is in the watching, and we find many people say, gee whiz, so that's what you mean. And then they have a picture. It's kind of hard to say in words what's happening out there on the floor with 15 kids for 60 minutes a day.

Speaker: A while ago you made a statement in reference to the structure. So much structure to tell the child what to do -- pre-planned structure -- get the child to think.

Karnes: Let me repeat that. It's the verbal interaction. I think the verbal interaction, that's the major. It isn't that we don't give children any free choice, but at least one hour a day, and if you count the period that we have meals, it's more than that, where it's teacher planned, and I guess you'd say teacher dominated, or highly structured. Yes.

Speaker: The program is obviously ... because you must foresee or you must see a need for oral language development in the disadvantaged child. Now, is the program flexible enough to adapt to the needs of the bilingual child, and if it is, how did you arrive at this?

Karnes: We have not tried it with the bilingual child, but we do have, we are sort of involved in a migrant program this summer, and we are going to try some of our materials and our approach with bilingual. But, all of our children, as Dr. Teska said, have been black and white, and we have had no Spanish-speaking children.

Former trainee: Dr. Karnes, can I respond to that? I have worked with migrant children, and I would say from my experience in this program and my experience with the migrant children, it would work. Also, the oral language program that has been developed for Spanish-speaking children is kind of halfway between this program and Bereiter-Engleman. A pattern drill kind of thing. Dr. Karnes' program would be a modification in that the objectives are twofold: not only to get the patterns of speaking, but also the information that is involved, whereas the oral language program is simply patterning.

Speaker: I'd like to ask a question, Dr. Karnes. Do you have any plans for the future, expanding your work with the parents and training parents as paraprofessionals -- because I see a great need for this area to be expanded.

Karnes: The local junior college - they have a training program for paraprofessionals now. And of course, at the University we couldn't directly train paraprofessionals, only on a research basis. Universities aren't set up for that. So we end the training program of leaders, and these people are going out to supervise and coordinate programs. They should be given some training because they are the ones who are going to have to play that role in some of the programs. But I think more and more junior colleges are going to cooperate with local programs and do some of the training. And of course, the things that has always concerned me: as you train people, you have to have placement for them. You don't just train people and give them a lot of false hope, and then there's no place they can get a job. And I think we have to work in many ways to create a readiness on the part of local groups operating day care public schools. There are many -- I remember working last summer in a Head Start Program as a consultant, in another state, where a teacher told me -- that was part of the public school -- that she had been in an experimental program and had had a paraprofessional working with her and that none of the other teachers would speak to her all year. They were so angry because they said that they were going to get in these paraprofessionals and eliminate teachers. And they were really quite threatened by the whole idea. That they were going to reduce the professional staff.

Question: Dr. Karnes, what about getting fathers involved?

Karnes: We've mentioned that with some apology, that we recognize we should have done more but we had to limit what we did. It was in the scope of the money we had, and we have worked with siblings, 10 to 15 year olds, and 15 to 19 year olds, but we've left the father out. Not purposely, not that we don't think he's important.

Zehrbach: Let me just respond to that. You really touch kind of a sore but important point with us. You know, around the office we say gee, tomorrow we've got to do something for the fathers, you know. We've got to bring them in. Now, there is a rationale for the approach that was used. The literature suggests that the mother's the one that gives these kids the achievement motivation in the home. The fathers play a less important part in many, even middle class homes. So we're not wrong in starting with the mothers, but as we get into these different cultures, it has become very apparent that if what you think of as a usual family unit being the father, mother and the children, then we've got to do something to help the fathers learn how to be fathers. So that would be a part of our next goal, but you see, the important thing about this whole thing is consider the whole process. We're talking about five years of research that gets sequence based on the growth of knowledge that we've developed. We are able now to specify the kind of goals that we're willing to work for, like get the child to learn to read, get the child to do a better job in arithmetic in the school. Now if you want to substitute some different goals, then you can ask will your approach seem to work. I think that the approach is going to work, and we can now start to thinking about what if I would substitute this goal instead of that goal. Now, how do I reach it? You see, now we can start asking questions like that. So the question is: does the approach work? Yes. The general approach seems to work. It works in these few specific cases that we've told you about, and I think, now we've got to ask ourselves what other goals might we be willing to work toward.

Karnes: And I think we haven't stressed enough, probably more important than any facts or skills or anything that we hope the children develop, is for them to think they're worthwhile human beings. Their self-image is the most important thing. And our children I think, think they're smart. We tell them they're smart. They like to come to school, and they like to learn, and I think the parents are rewarding them for their efforts. And if they go into the public schools feeling that they are adequate, they are self-confident, they approach a learning task with a feeling they can succeed. I think maybe that's more important than anything else. And that's very hard to test on an instrument. We have a lot of feeling. A lot of observations that we can't always objectify and put into statistics. ... We are almost apologetic in talking about some of these figures because we approach every child as an individual, and we have charts on children. We're concerned about the individual child, yet we report averages. Averages don't mean anything. They really don't mean anything. It's the individual child. We could tell you about individual children. We are really thrilled about what happens to individual children. We've had a child, I know since I've been here, one of our former teachers said how is so-and-so doing? I said, how is so-and-so doing? He's in the first grade and he's reading! You know, I mean he was doomed to go in the trainable class. Now that's N of 1. And this is something if you'd report in a **research** study, they'd say an N of 1? Who wants to hear about an N of 1? We're not quite Piaget, you know. We can talk about an N of 1. If we save just one child, I think. His sister was in a trainable class and they had a history of being in special classes. And now he's in the first grade. And it's probably worth saving him, it's worth all this money we've spent on research, just for one child. So it's hard to really convey what really happens in the program in a short period of time, or with the statistics we have to share with you. And we're pleased with our stage, but we're not satisifed. We think we'll do a little better this year than we did last year. So, a little progress, to reinforce what this gentleman said, that is working toward something a little better, we hope. . . .